

DRAFT

RURAL LANDSCAPE MANAGEMENT PROGRAM
Environmental Impact Statement



Cuyahoga Valley National Park, Ohio

**NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR**

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SUMMARY

PURPOSE AND NEED FOR ACTION

Preservation of the rural landscape is central to Cuyahoga Valley National Park's legislative mandate. The law that established CVNP mandates the "preservation of the historic, scenic, natural, and recreational values of the Cuyahoga Valley" (Public Law 93-555, 1974). One component of the historic and scenic values of CVNP is the rural landscape. (In this document, the term "rural landscape" refers to lands and structures modified by humans for agricultural use.) Throughout the park's history, efforts to preserve the rural landscape have been sporadic; there has never been a comprehensive program to manage the rural landscape. As a result, many of the park's rural landscape resources have been lost. Therefore, CVNP is proposing to better protect and revitalize this cultural resource by implementing an integrated rural landscape management program, with the goal of more effectively and systematically preserving and protecting the rural landscape resources in the park. The accompanying draft environmental impact statement (EIS) analyzes four alternatives and their associated impacts.

BACKGROUND, POLICIES, AND PLANS

Farming history in the park and in the Cuyahoga Valley Region is significant. For the past one thousand years, there has been some form of agriculture in the Valley (Richner 2001). In the more recent past, specifically the 1800s, agriculture was the dominant and very prosperous way of life, particularly due to efficient transportation of goods via the Ohio & Erie Canal and the railroad system. But by the 20th century, new developments in agriculture in other parts of the state and country surpassed the Valley's farming methods. As a result, farming in northeast Ohio began to decline, while industrial, commercial, and residential development increased. However, the Cuyahoga Valley Region was largely spared from extensive development due to its challenging geography and geology. The 33,000-acre CVNP was created in December 1974, effectively halting the conversions of historic farmsteads into residential and commercial uses.

As the National Park Service (NPS) began to acquire land for the new park, beginning in 1975, the focus was on protecting land from development pressures. However, once acquired, farm structures and farm fields were not given priority attention. Most of the farm buildings were allowed to stand vacant and deteriorating, and farm fields were untended and prone to ecological succession. While undeveloped lands in natural condition were seen to benefit from this "hands off" management strategy, farm properties suffered severe negative impacts. Attempts to address this shortcoming in rural landscape management were slow and haphazard and usually occurred in a very opportunistic fashion. Efforts including occasional mowing of farm fields, involvement of local farmers through short-term special use permits, and adaptive re-use of scattered historic farm buildings proved to be inadequate given the magnitude of the rural landscape preservation challenge.

The most recent effort to address rural landscape management is significant. To develop CVNP's first long-term, comprehensive, agricultural plan, park managers conceptualized a new program called the Countryside Initiative (CI). The park assisted with the formation of a nonprofit partner, the Cuyahoga Valley Countryside Conservancy (CVCC), to help develop and facilitate the CI. The NPS has developed a Cooperative Agreement with the CVCC for this purpose. A Request for Proposals (RFP) for five sustainable agriculture farmsteads was offered in January 2001 (see Appendix E "Production Practices for Sustainable Agriculture"). The park has recently negotiated three leases as a pilot project for the CI. The expansion of this program is outlined as Alternative 2 (the Preferred Alternative) in this document (See also Appendices B and G for information about the agricultural leasing program and fencing guidelines).

The NPS has several mechanisms that allow for agriculture in parks. One of those is its *Management Policies* document, which states that agriculture is allowed when those agricultural activities "do not result in unacceptable impacts on park resources, values, or purposes, conform to activities that occurred during the historic period, and support the park's interpretive themes" (NPS 2001e, p.93). Agricultural uses that do not conform to those in practice during the historic period may be allowed if they "contribute to the maintenance of a cultural landscape" or "are carried out as part of a living exhibit or interpretive demonstration" (NPS 2001e, p.93). The NPS may also allow livestock use "when required in order to maintain a historic scene".

Similarly, on the park level, CVNP has developed several planning documents that address the topic of preserving the rural landscape. In particular, the park's *General Management Plan* (GMP) (NPS 1977) states that "the rural character of America is readily communicated in the agricultural landscapes that have survived to the present day. These and other valuable resources suggest both careful preservation and imaginative interpretation to ensure that they become an integral part of the Cuyahoga environment" (p.35). The GMP, as well as several other planning documents, which are examined in detail in Chapter 1, trace the park's continued desire to preserve the rural landscape and show what steps the park has taken over the years to do so. Currently, the total amount of farming in CVNP is about 3.6 percent of park land.

CURRENT SITUATION

CVNP implements 11 management methods that help preserve the rural landscape, such as leasing and special use permits to name a few. All 11 of these are explained in Section 1.2.4.5. Individually, each of these methods has benefits and drawbacks. Collectively however, it is the inherent drawbacks of these methods that do not allow for the comprehensive management of the entire rural landscape. Although individuals with special use permits (SUP) are farming some fields, this is generally done on a short-term basis so the farmers usually are not focused on long-term care of the land. There are many other fields that could contribute to the rural landscape, but if they are not tended to regularly by permit holders, lessees, or the NPS mow crew, the fields become overgrown. There are more buildings in the park than the park can actually use for its own purposes, so many buildings sit idle and are subject to vandalism and/or deterioration and

ultimately, demolition. Unfortunately, the opportunistic fashion in which the many methods have been applied has made rural landscape management in the park a laborious, expensive, and less than effective undertaking.

OBJECTIVES

In order to more effectively and systematically preserve and protect rural landscape resources in the park, three main objectives must be met in order for an alternative to be analyzed in this draft EIS; otherwise, it was dismissed. The objectives are:

1. *Continue the agricultural tradition* – Agricultural activity, or the appearance thereof, must be preserved in order to maintain agricultural open space and promote the historic character of the Cuyahoga Valley. Either active farming or open rural landscapes without active farming would be acceptable means of achieving this objective.
2. *Preserve scenic values* – CVNP’s enabling legislation mandates the preservation of scenic values, which includes cultural and natural elements. The preservation of agricultural lands and structures that make up the park’s rural landscape will help achieve this objective, but any action must be balanced with effects on natural scenic values.
3. *Use environmentally sound practices* – NPS policies and practices promote responsible stewardship of the land. Because the proposed action will affect the park landscape broadly, environmentally sound practices are imperative.

Another important factor in determining which alternatives would be analyzed is the laws and regulations governing NPS actions. These can be found in Section 1.3.2.

ISSUES

The public scoping process identified environmental issues of concern. Those that might lead to discernable impacts were analyzed. The areas of impact analysis include potential environmental impacts on:

- Cultural Resources, including archaeological resources, historic structures, and cultural landscapes;
- Vegetation, including rare, threatened, and endangered species, and associated habitat;
- Wildlife, including rare, threatened and endangered species, and their habitats;
- Water Resources, including wetlands, streams, rivers, floodplains, and ponds; and
- Social Environment, including human health and safety, nuisance wildlife, visitor use and experience, and local communities.

ALTERNATIVES

Before the four alternatives could be fully devised, the amount of agricultural land and structures available for management had to be determined. Land and structure inventories were conducted, which determined that 1,345 acres of land and 58 properties with 175 structures could be included in the rural landscape management program. These totals are the maximum amount of land and structures available for management regardless of the alternative selected. Currently, the NPS manages approximately 740 acres using one of the methods described in Section 1.2.4.5. The remaining 605 acres of available open space are not currently actively managed for rural landscape value. The proposed action would designate these areas for mowing or potential agricultural use.

The actions common to all the alternatives include:

- **Policies, Protocols, and Monitoring:** Each alternative will conform to a common set of applicable regulations, NPS guidelines, policies, and procedures. If it does not, NPS will seek and implement the appropriate remedy before taking such actions.
- **Common Vista Management Actions:** Two large areas will be managed (through mowing or habitat management) as grassland habitat, and one area will continue to be mowed for recreational purposes. This acreage (~135) will not be available for other agricultural uses.
- **Management Methods Available:** Various methods may be used in any of the alternatives, but the difference between the alternatives is the emphasis of one or two methods over the others.
- **Rehabilitation and Maintenance of Properties:** The NPS will rehabilitate properties and be responsible for major property maintenance over time. Day-to-day maintenance may be the responsibility of the particular user if other than the NPS. Also, the rate at which properties are rehabilitated is constant among alternatives (approximately 3-4 per year for 10 years), although the type of rehabilitation may differ. Properties will be rehabilitated in order of priority for use. Structures on properties pending rehabilitation will undergo interim stabilization measures and associated lands will be maintained to control succession.
- **Resources Reviews:** Natural and cultural resource staff will review all lands and structures that will undergo any change in current management methods before any changes are approved.
- **New Acquisitions and Unforeseen Circumstances:** If additional lands and structures are acquired by the NPS, they will be assessed as described for current NPS lands and structures, and then managed under the selected alternative.

Alternative 1 - No Action

In this alternative, the NPS would continue to manage the rural landscape under current park plans and practices using the available management methods. In other words, the various methods would continue to be applied to unmanaged areas and structures

opportunistically as needs arise. There would be no significant change in the emphasis of how these methods are used.

SUPs and vista management by mowing would continue to be the dominant land management strategy, so a mix of conventional farming, sustainable farming, and equestrian uses would be expected. Adaptive park uses and long-term leasing would dominate structure management. Land management and day-to-day maintenance of farm buildings and curtilage lands would be shared in many ways among leaseholders and NPS staff. Little new construction or fencing is expected because the short-term nature of SUP farms does not motivate many farmers to take on this kind of expense. Finally, pesticide use in the park may increase if more land is leased, but the proportion of leased lands treated with pesticides and the type of pesticides used is expected to remain relatively constant. Because of the opportunistic nature of this alternative, some loss of land to succession and loss of structures to deterioration is expected. There are specific costs and income associated with Alternative 1 during the first ten years, the second 10 years, and each year thereafter. These are detailed in Table 2.3 of the EIS. The net cost of this alternative over 20 years is \$27,054,750 and will be \$797,020 each year thereafter.

Alternative 2 - Countryside Initiative - Preferred Alternative

In this alternative, the rural landscape would be managed largely by issuing long-term leases to private individuals for the purpose of conducting sustainable agricultural activities and revitalizing a 'sense of place' in the Cuyahoga Valley. Lands and structures would be leased together, at a rate of 2-3 farms per year for ten years, for agricultural use for periods of up to 60 years. Agricultural open space associated with these farmsteads and not currently managed would be cleared by mowing and/or brushhogging in preparation for farming activities over the next decade.

Farmers would be selected for the CI through an RFP. CI farmers would be required to submit annual farm operating plans for NPS approval. The plans would describe proposed farm activities such as new construction, crop and livestock selection, farming practices, and pesticide, fertilizer, and water use. All farm activities will require NPS approval.

Land management and day-to-day maintenance of farm buildings would become largely the responsibility of the lessees. Pesticide use in the park would be expected to increase as more land is put into active economically-based production, but the types of pesticides used would be largely biological (e.g., *Bacillus thuringiensis*, milky spore, beneficial fungi) rather than chemical. The use of cultural practices, (e.g., rotational planting) biological pesticides and controls, (e.g., ladybugs) and NPS integrated pest management practices would be emphasized over chemical uses. Changes to the landscape elements are expected. Fencing, outbuildings, farm-related structures, bridges, windmills and other structures could be built on leased farmsteads. Because CI farms need to be economically viable, farmers will need to protect their products from foraging wildlife, so the increase in fencing is expected to be substantial. However, all fences will conform to the fencing guidelines in Appendix G.

Farmers would be expected to use the common marketing methods used in sustainable farming. These include *Pick-Your-Own*, *Community Supported Agriculture* programs in which shares of each season's production are sold in advance to a number of families, and *Restaurant Supported Agriculture*. Additionally, some farmers might maintain a roadside stand, attend weekly farmers markets, deliver direct to customers, or have customers pick up produce at the farm. There are specific costs and income associated with Alternative 2 during the first ten years, the second 10 years, and each year thereafter. These are detailed in Table 2.4 of the EIS. The net cost of this alternative over 20 years is \$22,328,305 and will be \$369,822 each year thereafter.

Alternative 3 - Vista Management

In this alternative, the NPS would manage the rural landscape primarily for scenic values. The most significant change would be that upon expiration, agricultural SUPs and other agricultural activities on park property, would convert to mowing and non-agricultural use. Regarding structures, the restoration of currently unused farm structures would primarily be as scene-setters (buildings that strictly add to the aesthetics of the park as features of the cultural landscape without any operational function), or secondarily as residential, office, or other non-agricultural use.

Regarding lands, lands would be used for non-agricultural purposes and be mowed to maintain open fields or as wildlife habitat. Curtilage lands will be mowed by NPS to maintain open space. Areas identified as significant for rare, threatened, endangered, or declining plants and animals would be identified and managed to increase habitat value, usually by adjusting mow frequency and timing. Mowing and other land management and maintenance activities would be largely the responsibility of NPS.

Little new construction or installation of fencing is expected. Pesticide use would be expected to decrease as land is taken out of agricultural use. There are specific costs and income associated with Alternative 3 during the first ten years, the second 10 years, and each year thereafter. These are detailed in Table 2.5 of the EIS. The net cost of this alternative over 20 years is \$20,588,675 and will be \$639,100 each year thereafter.

Alternative 4 - NPS Farming

In this alternative, the NPS would manage the rural landscape primarily by hiring employees or contractors to implement a network of farmed areas as directed by the NPS to give the appearance of active farming in the park. Under this option, lands not under agricultural use would be put into agricultural use and unused structures would be rehabilitated primarily as scene-setters or to support NPS farming activities. Curtilage lands around these structures would be mowed. A farming program directed by the NPS could also include a few farms demonstrating various themes such as sustainability and farming practices of specific historical eras. Basically, the NPS would fill any gaps in agricultural activity on rural lands. This alternative seeks to preserve not only the open

space and vistas associated with agricultural areas, but also the agricultural activities associated with those areas.

Areas currently farmed would continue to be farmed under the management method already in place, but areas currently managed as open vistas would gradually be converted to NPS farming. Whether SUP farmers or NPS farmers were doing the farming, agriculture would be increased above current levels under this alternative. Structures would be managed largely as scene-setters. Curtilage lands would be primarily mowed. Therefore, land management activities and day-to-day maintenance of farm buildings would become largely the responsibility of NPS staff or contractors. Since the emphasis here would be on the activities relating to farming - plowing, sowing, and harvesting - little emphasis on crop protection or production would be made, therefore an increase in fencing or pesticide use is not likely to occur. There are specific costs and income associated with Alternative 4 during the first ten years, the second 10 years, and each year thereafter. These are detailed in Table 2.6 of the EIS. The net cost of this alternative over 20 years is \$23,212,025 and will be \$766,090 each year thereafter.

ALTERNATIVES CONSIDERED BUT REJECTED

A set of ten additional alternatives were raised during scoping, but were not analyzed further. They include: Allowing succession; Protecting agriculture outside the park; Developing demonstration farms, only a few farms, organic farms, or historical farms; Implementing Habitat Management only; Restoring original farmland; Establishing public service farming; and Returning farmsteads to original farmers. The reasons these alternatives were dismissed are explained in Section 2.9.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. When identifying the environmentally preferred alternative, economic, recreational, and technical issues are not considered. The park's preferred alternative, Alternative 2, while providing major benefits to the historic and cultural environment, also has the potential to have overall moderate adverse effects on biological and physical resources. As a result, Alternative 3 is considered the environmentally preferred alternative because it causes the least amount of impact on biological and physical resources, and provides at least moderate benefits to the natural, cultural, and historical environment of the park. However, inherent in this decision-making process are trade-offs between natural and cultural resources. In many cases, actions that provide the most benefit to cultural resources also have the greatest negative effects on natural resources, and the opposite is often true as well. It is because of these trade-offs that the park's Preferred Alternative is not the Environmentally Preferred Alternative.

IMPAIRMENT

Impairment of park resources and values is not anticipated from the proposed action. Some actions may have unavoidable adverse impacts, but many of these have been minimized or reasonably mitigated. For example, the conversion of grasslands and “older fields” to agricultural use has direct consequences on species that live in those habitats, so two large grassland habitat management areas were designated to preserve the largest and highest quality habitat for rare and declining bird species and other species dependent on that habitat. Similarly, some of the largest existing areas of shrub habitat were preserved and not targeted for agricultural use and a Habitat Management Plan will be drafted within 5 years to address the long-term maintenance of these open habitats.

Also, the preservation of open space in a largely forested landscape contributes to fragmentation levels and related edge effects. This action alone is not an impairment, but the cumulative effects of increased fragmentation of forested areas outside of the park could possibly lead to the eventual local extirpation of some sensitive forest interior species that need large, uninterrupted expanses of land. This would constitute a major adverse impact, but is not likely to lead to impairment due to the small number of species involved and the indirect and unavoidable nature of the impact.

Finally, if deer are forced to browse more heavily on sensitive forest understory species because farm fields and open habitats are suddenly off limits, bottomland forests may be less likely to regenerate. Mitigation associated with this action is beyond the scope of the draft EIS; however, the park has already initiated early planning steps for a full environmental analysis under NEPA to assess possible management alternatives for reducing deer-related impacts and preventing impairment of park resources and values.

ENVIRONMENTAL CONSEQUENCES

This section consists of an abbreviated summary table (Table S.1) and the text below. The text describes how impacts were analyzed and other factors considered in the analysis. It is categorized by the five broad issues of concern – cultural resources, vegetation, wildlife, water resources, and social environment. The table is also grouped according to these five categories. It shows the type of impacts expected with each alternative. Impacts that are common to all alternatives, as well as the full impact analysis, are explained in Chapter 4. A detailed *Summary Comparison of Impacts of the Alternatives* is found in Table 2.9.

Impacts on Cultural Resources

The main cultural resources of the park can be categorized as archeological resources, historic structures, and cultural landscapes. Archeological resources are often exposed during ground disturbing activities; therefore, impacts were analyzed based on the amount of ground disturbance anticipated under each alternative. Historic structures will be rehabilitated at the same yearly rate, regardless of the alternative chosen. What differs among the alternatives is how the use of the structure portrays its historic character and

the long-term preservation potential of the structure; therefore, impacts were analyzed based on these two criteria. Cultural landscapes are the least tangible of the cultural resources. Cultural landscapes at CVNP are preserved to maintain their character and feeling, rather than a specific appearance or time period. More specifically, it is the *rural* landscape at issue in this draft EIS. The rural landscape exhibits the historic activity as well as the cultural and aesthetic values associated with agriculture. For this resource, impacts were analyzed by comparing each alternative's ability to portray the historic rural character of the landscape, which is defined by its function, visual quality, spatial organization, land use patterns, and character-defining features.

Impacts on Vegetation

The terrestrial vegetation in CVNP consists of forest, "older fields" in various states of succession, wetlands, suburban lands (lawns, golf course, and cemeteries), and agricultural fields. Only vegetation within and directly adjacent to the proposed agricultural lands is likely to be directly affected by the proposed action. The level of impact on vegetation that will occur is related to the level of succession that has already taken place there. For analysis purposes, proposed agricultural lands are best categorized as "open fields," which refer to currently or recently managed fields and grassy meadows that are in early stages of succession, but do not possess significant shrub/sapling growth, and "older fields", which refer to areas that have significant shrub/sapling growth to heights sometimes greater than six feet. The "older fields" that are further in succession are likely to experience a broader range and intensity of impacts.

It is expected that while forest habitats are not directly affected by the proposed action, forest vegetation in the park may be indirectly affected by some alternatives that increase deer populations and their browse pressures in forests.

In evaluating the impacts on terrestrial vegetation, several topics were considered: threatened and endangered plants, loss of native vegetation, hybridization, arrested succession, and edge effects and fragmentation. Impacts were analyzed in terms of total anticipated changes after 10 years. The level of impact on these topics is directly related to the type of management undertaken under each alternative.

Impacts on Wildlife

There are a multitude of wildlife species and habitats located in CVNP. Wildlife (and their associated habitats) most likely to be affected by the proposed alternatives in this draft EIS are white-tailed deer, terrestrial birds, coyotes, beaver, potential "nuisance species" such as raccoons, woodchucks, Canada geese, and butterflies. Impacts of the proposed action to wildlife were assessed primarily in terms of potential effects on amount and quality of habitat, distribution of animals, and levels of direct disturbance to species. Impacts were largely analyzed in terms of total anticipated changes from existing conditions after 10 years. Furthermore, impacts on wildlife were assessed in terms of likely worst-case scenarios. In other words, it was assumed that all acreage proposed for

each alternative would be completely utilized for the purposes described and in the proportions described.

Impacts on Water Resources

The water resources present in CVNP include rivers and streams, wetlands, and lakes and ponds. Most park streams and all ponds meet the warm water habitat standards set by the State of Ohio. It was assumed that the protective buffers prescribed in the *Riparian Buffer Plan for Proposed Agricultural Lands* and the *Wetland Protection Plan for Proposed Agricultural Lands* would be implemented prior to action and that these buffers would effectively prevent most direct and indirect impacts to water resources. The potential that the alternatives would facilitate future development or impact water resources or their buffer zones was examined. It was assumed that such situations are most likely to be associated with long-term leasing of farmsteads and new construction activities. It was also assumed that park utilization of structures and maintenance of open space by mowing would not often result in these unavoidable impacts due to the flexibility of these management approaches.

Impacts on Social Environment

There are four areas in which the human component of the park could be affected by the proposed action: health and safety, which includes effects of electric fencing, guardian animals, and/or deer-vehicle accidents; the effects of nuisance wildlife; visitor use and experience, which includes scenic values as well as recreational activities; and local communities, which includes effects on municipalities, schools, and local businesses.

Depending on the location of the farmsteads to be used, some communities and school districts may experience more impacts. Boston Township is the community with the most agricultural properties (almost 50 percent), including the most that could become residences. Potential residences are distributed across six school districts, with the largest amount occurring in the Woodridge School District (74 percent).

Two other factors considered in the analysis are taxes and park visitation. Some communities collect revenue through income taxes. The NPS has several mechanisms, including fire protection compensation and road improvement grants, to compensate communities affected by the level of park visitation. There are several businesses, including farms, in and around the park that thrive in part due to park visitation.

Table S.1 concludes this summary.

Table S.1. Abbreviated Summary Comparison of Impact of the Alternatives

The following terms are used in this abbreviated impact summary chart and throughout the environmental impact statement:

- **Negligible:** the impact is localized or at the lower levels of detection
- **Minor:** the impact is localized or slight, but detectable and would not affect overall resources
- **Moderate:** the impact is clearly detectable and could have an appreciable effect on overall resources; has the potential to become major
- **Major:** the impact is highly noticeable and characterized as severe, or if beneficial, has exceptional beneficial effects

Hyphenated impacts levels indicate the range of impacts that are expected. A full summary comparison chart is found in Table 2.9 in the EIS.

Topic	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Countryside Initiative	ALTERNATIVE 3: Vista Management	ALTERNATIVE 4: NPS Farming
IMPACTS ON CULTURAL RESOURCES				
Archeology	Negligible-minor adverse impacts due to fencing, construction, & compaction from grazing; Minor-moderate adverse impact due to ground disturbance from utility installation; Moderate adverse impact due to conventional cultivation.	Negligible-minor adverse impacts due to sustainable agricultural activities; Moderate adverse impacts due to new structures, fencing, & utility installation.	Negligible-minor adverse impacts from utility installation.	Negligible-minor adverse impacts from new construction & utility installation; Moderate adverse impacts from conventional cultivation methods.
Historic Structures	Major beneficial effect on long-term preservation when put into active use; Minor-moderate adverse impacts may occur if there are delays in putting structures to use; Moderate beneficial effect on historic character due to active use.	Major beneficial effects to historic character and long-term preservation potential of structures from long-term agricultural uses.	Moderate beneficial effects on historic character absent historical use and on long-term preservation potential; Major beneficial effects on long-term preservation when buildings are in full, active use.	Moderate beneficial effects due to use of structures, and connected use of land with structures; Major beneficial effects to rural character of farm and park-wide landscapes due to agricultural activities.

Topic	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Countryside Initiative	ALTERNATIVE 3: Vista Management	ALTERNATIVE 4: NPS Farming
IMPACTS ON CULTURAL RESOURCES (continued)				
Cultural Landscapes	Major beneficial effect on historic character for lands used for agriculture. Possible major adverse impacts at farm level if lands are lost to succession, possible minor adverse impacts at park level. Moderate beneficial effects from non-agricultural use of structures. Minor-moderate adverse impacts from unused structures.	Major beneficial effects to historic character of rural landscape from using lands in conjunction with associated structures for agriculture; Moderate beneficial effects from new fencing.	Minor beneficial effect on historic character from mowing; Moderate beneficial effect from use of structures as scene-setters or for park operations.	Major beneficial effects to historic character from agricultural activities. Moderate beneficial effect on rural character from use of structures as scene-setters or for NPS farming.
IMPACTS ON NATURAL RESOURCES				
Vegetation	Moderate adverse impacts from nutrients, pesticides and spread of invasives and non-native species. No impacts on threatened or endangered species are expected.	Minor adverse impacts from livestock movements and nutrient and pesticide flows. Minor-moderate adverse impacts from the spread of invasives; Moderate indirect adverse impacts from increased deer browsing on forest groundcover species diversity, forest diversity, regeneration, and vertical structure; Possible major adverse impact if sensitive understory species were lost. No impacts on threatened or endangered species are expected.	Negligible impacts. No impacts on threatened or endangered species are expected.	Minor-moderate adverse impacts from soil disturbance that could lead to the spread of invasive and non-native species. No impacts on threatened or endangered species are expected.

Topic	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Countryside Initiative	ALTERNATIVE 3: Vista Management	ALTERNATIVE 4: NPS Farming
IMPACTS ON NATURAL RESOURCES (continued)				
Wildlife	Minor adverse impacts on beaver. Minor beneficial effects on deer offset by human conflicts and harassment. Negligible-minor beneficial effects on early successional species & grassland (including state-listed birds); Negligible-minor adverse effects on most other wildlife; No impacts on federally-listed threatened or endangered species are expected.	Moderate adverse impacts on early successional and grassland species (including state-listed birds) due to net loss of habitat. Moderate-major adverse impacts on deer & coyote from loss of habitat and food resources, increased human conflicts and vehicle accidents; Possible major adverse impact if sensitive bird species are lost due to cumulative browsing impacts on forests by deer; No impacts on federally-listed threatened or endangered species are expected.	Minor-moderate beneficial effects to deer and beaver due to decreased human conflicts; Moderate-major beneficial effects to grassland & early successional species (including state-listed bird species); Negligible to minor adverse impacts on deer from some loss of agricultural forage; No impacts on federally-listed threatened or endangered species are expected.	Negligible-minor adverse impact on early successional & grassland species (including state-listed birds); Minor-moderate beneficial effects to deer due to increased forage. Minor cumulative adverse impact on sensitive forest bird species from deer browsing impacts on forests. No impacts on federally-listed threatened or endangered species are expected.
Water Resources	Negligible to minor adverse impacts from possible future development, largely reduced by mitigation efforts.	Possible negligible to major adverse impacts on individual water resources depending upon possible future site-level development plans. Additional compliance for site-level plans would assess and minimize site-level impacts. At the park level, any adverse impacts are expected to be negligible and largely be reduced by mitigation efforts.	Negligible impacts.	Negligible to minor adverse impacts from possible future development, largely reduced by mitigation efforts.

SUMMARY

Topic	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Countryside Initiative	ALTERNATIVE 3: Vista Management	ALTERNATIVE 4: NPS Farming
IMPACTS ON SOCIAL ENVIRONMENT				
Health & Safety	Negligible-minor adverse impacts from nuisance wildlife.	Minor adverse impacts from increased deer-vehicle accidents; Minor-moderate adverse impacts due to increased electric fencing and guardian animals. Minor-moderate adverse impacts from nuisance wildlife.	Negligible impacts.	Minor adverse impacts from increased deer-vehicle accidents due to increased deer population.
Visitor Use & Experience	Minor beneficial effects due to increased wildlife viewing opportunities.	Minor adverse impacts from limited access to park areas due to fencing; Moderate beneficial effects due to increased farming-related activities and programs. Moderate adverse impacts from decreased wildlife viewing and bird-watching opportunities, possibly exacerbated by cumulative effects of regional habitat loss. Moderate beneficial or adverse impacts depending on visitor preference for seeing working rural landscapes or preserved natural landscapes.	Moderate beneficial or adverse impacts depending on visitor preference for seeing preserved natural landscapes or working rural landscapes. Moderate beneficial effects due to increased wildlife viewing opportunities in mowed areas.	Minor beneficial or adverse impacts depending on visitor preference for seeing agriculture or natural landscapes; Minor benefits due to educational programs related to NPS farming activities; Minor-moderate beneficial effects due to increased wildlife viewing opportunities.
Local Communities	Negligible-minor beneficial effects on local community economics. Cumulative community growth could lead to possible adverse impacts on school districts expected depending on district response.	Minor-moderate adverse impacts on Woodridge School District from potential increase in number of children. Cumulative community growth could affect the level of impact expected depending on district response. Minor-moderate beneficial effects from increased local income tax. Minor adverse impacts to local farmers from a reduction in SUP land; Minor adverse impacts on local farmers from increased competition. Minor beneficial effects to businesses from increased visitation and to local farmers from increased program visibility.	Negligible-minor beneficial effects to school districts due to reduction in residents; Negligible-minor adverse impacts on communities' tax bases. Minor-moderate adverse impacts on farmers who use NPS lands.	Negligible-minor beneficial effects on local farmers due to increased visibility; Negligible-minor beneficial effects and on school districts due to reduction in residents; Negligible-minor adverse impacts on communities' tax bases; Negligible impacts on other local businesses.

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1. PURPOSE OF AND NEED FOR ACTION

About this Document

In 1969, the United States Congress passed the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.). As a result, when any agency of the Federal Government proposes a "major Federal action significantly affecting the quality of the human environment", a detailed statement on the environmental impact of the proposed action must be prepared. A fresh approach to rural landscape management in Cuyahoga Valley National Park, the topic of this draft environmental impact statement (EIS), could manifest itself in a variety of ways and could have varying degrees of impact on the park's resources. As a result, NEPA was triggered and the environmental impact statement process began.

The National Park Service is required by its laws, policies, and regulations to avoid any actions that may adversely affect or impair park resources and values. This EIS process serves as a primary tool to help NPS decision-makers assess the types and levels of impacts expected from a proposed action to avoid impairment.

An EIS team comprised of National Park Service (NPS) specialists, including natural and cultural resource experts, was created to develop this document. There are six chapters in this draft EIS: Purpose of and Need for Action, The Alternatives, Affected Environment, Environmental Consequences, Consultation and Coordination, and References.

Chapter 1, "Purpose of and Need for Action", explains why this document is being developed; it provides the necessary background information to allow the reader to develop an informed opinion about rural landscape management in Cuyahoga Valley National Park. It consists of four main sections - Introduction, Background, Objectives and Constraints, and Scoping Process and Public Participation.

The Introduction explains in a general way the reasoning and objectives for taking an action at this time. The proposed action is the activity the park wishes to implement and is the subject of this draft EIS. The need for action identifies the critical problem the park is facing. The purpose of action clearly states the desired goal from taking action. The Background provides a comprehensive look at agriculture and the rural landscape and the associated management practices throughout the history of the Cuyahoga Valley Region and the national park itself. This section ends with a well-defined problem statement, which explains the need for action in a more detailed way. The Objectives and Constraints provide more detail on how the proposed action will occur, as well as the legal limitations associated with action. Finally, the Scoping Process and Public Participation section explains the public involvement process and the issues raised during that process.

Chapter 2, "The Alternatives", explains the methodology used in selecting the feasible alternatives for rural landscape management. Alternatives that were considered are

explained in detail, including associated costs. Based on the methodology, some alternatives that were suggested were not considered for analysis. This chapter also identifies the preferred alternative and the environmentally preferred alternative. The preferred alternative is not required to be the environmentally preferred alternative.

Chapter 3, "Affected Environment", provides a description of the areas of the environment that will be affected or created by the alternatives. There are some mandatory topics that must be considered as part of the affected environment, including wetlands, threatened or endangered species, floodplains, and more.

Chapter 4, "Environmental Consequences", addresses the impacts associated with each of the alternatives. Direct, indirect, and cumulative impacts are examined.

Chapter 5, "Consultation and Coordination", contains a description of public involvement, the list of preparers and their expertise, and a list of recipients of the draft EIS.

Chapter 6, "References", contains a list of common acronyms, a glossary, a bibliography, an index of key words, and the appendices.

1.1. INTRODUCTION

1.1.1. Proposed Action

Cuyahoga Valley National Park (CVNP) is proposing to implement a fresh and more assertive rural landscape management program. A rural landscape is characterized by a large acreage of land with a relatively small number of structures (NPS 1996). In turn, the rural landscape reflects the day-to-day occupational activities of people engaged in traditional work. These traditional occupational activities include agriculture, mining, lumbering, and other similar activities. For the purposes of this draft EIS, CVNP is focusing on the agricultural element of the rural landscape. Thus, throughout this document, the term "rural landscape" refers to lands and structures modified by humans for farming or agricultural use.

Preservation of the rural landscape is central to CVNP's legislative mandate. The park's mandate includes the "preservation of the historic, scenic, natural, and recreational values of the Cuyahoga Valley" (Public Law 93-555, 1974). The rural landscape contributes to the historic and scenic values of CVNP. But despite various attempts to stem the decline of the rural landscape within the park's boundaries, many of the farmsteads have fallen into disuse and disrepair. As a result, CVNP is proposing to better protect and revitalize this cultural resource by implementing an integrated rural landscape management program. This draft EIS examines several possible alternatives to achieve this goal while protecting park resources and values from impairment.

1.1.2. Need for Action

Areas of agricultural open space are quickly disappearing in Ohio. The same can be said of open lands within CVNP. While there are few development pressures within the park, natural succession continues, so areas that once were used for agriculture are fast becoming unrecognizable. Associated farm structures, such as farmhouses and barns, are being lost to deterioration.

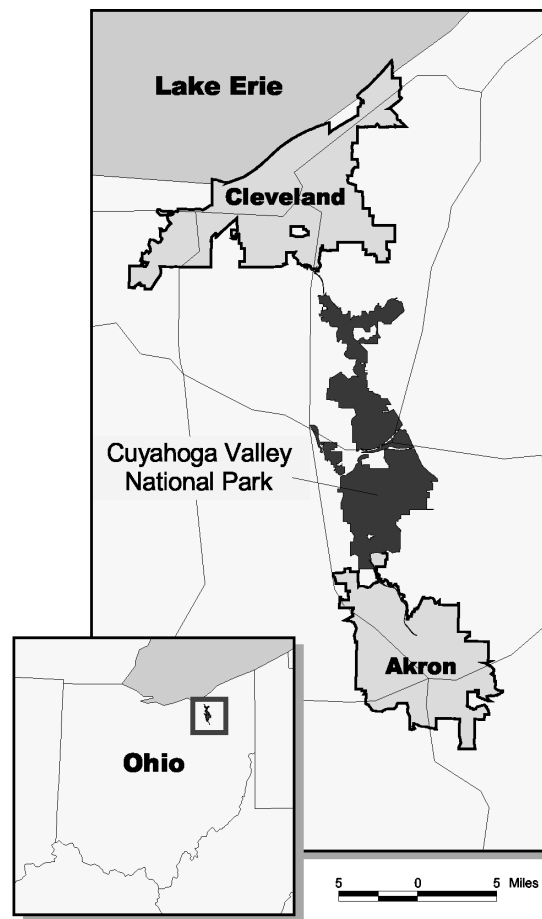
Rural landscape management has been addressed in various park-planning documents and has been implemented to varying degrees, but it has not been achieved to its full potential. Throughout the park's existence, despite rural landscape management efforts, many of the park's rural landscape resources have been lost. A need for better protection and management of these park resources exists.

1.1.3. Purpose of Action

The purpose of a fresh and more assertive approach to rural landscape management is to more effectively and systematically preserve and protect rural landscape resources in Cuyahoga Valley National Park. The objectives that must be met in order to achieve this goal are 1) preserve the agricultural tradition, 2) preserve scenic values, and 3) use environmentally sound practices.

1.1.4. Project Location

Cuyahoga Valley National Park is one of 385 parks in the National Park System. It encompasses approximately 33,000 acres of relatively undeveloped land along 22 miles of the Cuyahoga River between the metropolitan areas of Cleveland and Akron, Ohio. Within the legislative boundary, the NPS owns approximately 18,500 acres. The remainder of land is owned and under management by other public or quasi-public entities, or remains in private ownership. Management of the rural landscape on the



Location of Cuyahoga Valley National Park, Ohio.



A historic view (1913) of the heart of Boston Township showing the railroad tracks, bridge over the Cuyahoga River, and surrounding structures amongst farmed fields. These farmed fields no longer exist although other features are still recognizable.

federally-owned acres within park boundaries is the focus of this draft EIS.

1.2. BACKGROUND

1.2.1. The History of Agriculture in the Cuyahoga Valley Region

The Cuyahoga Valley Region, which extends well beyond the boundaries of CVNP, can be defined in many ways, but the most distinguishing features of the valley are its walls to the east and west, and the northern terminus of the Cuyahoga River at Lake Erie. However, regardless of how the valley is defined, it is an area rich in agricultural heritage.

For nearly 12,000 years, human beings have had a presence in the Cuyahoga Valley. Stories of prehistoric and historic people are told in the archaeological remains found throughout the valley. It is not known exactly when farming in the valley began, but limited farming practices probably began as early as 600 AD with the late Woodland culture, although there is no direct evidence of this (Richner 2001). However, there is archaeological evidence of agricultural practices by the Whittlesey culture in the Cuyahoga Valley starting in 1050 AD and lasting though about 1600 AD. Burned seeds and burned corncobs were found near the Canal Visitor Center in the northwest section of the park. There is also evidence that squash and common beans were grown in that area.

It is certain that for approximately the past one thousand years, there has been some form of agriculture in the valley (Richner 2001). Extensive research has been done about archaeology and agriculture in the valley, but only a small portion of this information is presented here. Detailed information can be found in the following documents: *Archaeological Investigations in the Cuyahoga Valley National Recreation Area* (Brose 1981), *Agricultural Resources of the Cuyahoga Valley Multiple Property Documentation Form* (NPS 1992a), and *Cultural Landscape Thematic Overview and Methodology Guide* (for Cuyahoga Valley National Recreation Area) (NPS 2000a).

Shortly after the end of the influence of the Whittlesey culture, European contact with this region began. It was in 1669 that LaSalle began his exploration of the area. Continued exploration and settlement over the next century led to the formation of the Connecticut Western Reserve in 1786. The Western Reserve, which was comprised of the land south of Lake Erie and north of the 41st parallel, contained the land that was later to become part of the state of Ohio, in 1803. Many Irish, German, and Polish immigrants were lured to Ohio because of what seemed to be limitless agricultural land and other work opportunities (NPS 2000a, p.10). As a result, farming in Ohio, particularly in the Cuyahoga Valley, was very prosperous in the 1800s.

There were two major factors that contributed heavily to the prosperity of the farms in the valley: the creation of the Ohio & Erie Canal and the development of the railroad system. The canal, which was completed in 1832, provided farmers with a way to deliver their agricultural products to Lake Erie in considerably less time than in the pre-canal days. Shorter delivery time meant less spoilage, which meant greater economic returns for the farmers. Beginning in the 1880s, the railroad, which was faster, cheaper, and more dependable because freezing and flooding were not concerns, made agriculture even more efficient and prosperous. The 1860 agricultural census figures indicate that Ohio



A typical farmed field in the Cuyahoga Valley (1917).

was a national agricultural leader. Ohio ranked 2nd in the country in cash value of farms, and 3rd in acres of land in farming (NPS 1992a, p.5).

Farming practices and farming-related industries dominated the 19th century and evolved considerably during that time in the Cuyahoga Valley Region. Eventually though, developments in agriculture in other parts of the state and the country surpassed the developments in the valley, so farming in the valley began to decline. The large-scale farms of the west made it difficult for the farmers in Ohio to compete. In addition, the industrial boom in the cities of Cleveland and Akron enticed farmers out of the countryside and into the cities in search of greater income.

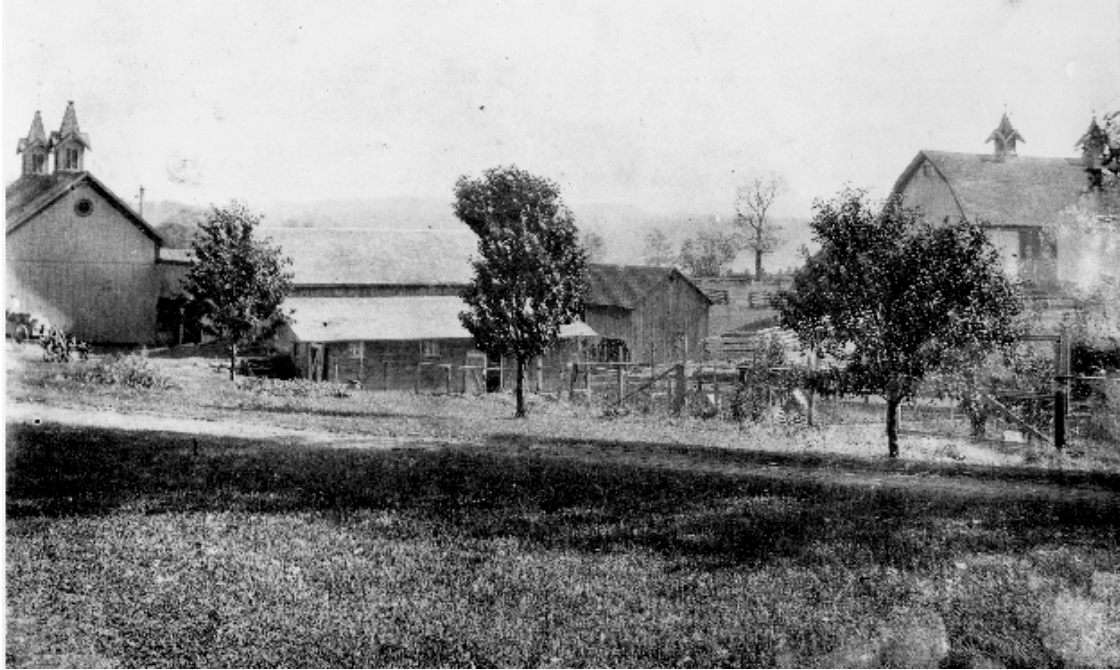
Throughout the 20th century, agriculture declined, while industrial, commercial, and residential development increased in northeast Ohio. The Cuyahoga Valley was spared somewhat because the area's unstable glacial slopes and wet, clay soils helped buffer the valley from extensive development (NPS 1992a, p.10). In addition, the availability of potable water has always been limited (Debo 2001).

Another factor in the protection of the Cuyahoga Valley from development pressures was the creation of Cuyahoga Valley National Recreation Area in 1974. Approximately 33,000 acres of national park land were set aside to "preserve and protect the historic, scenic, natural, and recreational values of the Cuyahoga River and the adjacent lands of the Cuyahoga Valley" (Public Law 93-555). But, even though development was on the rise and agriculture was on the decline in the region, some small farms still existed within the boundary of the new national park.

1.2.2. The Evolution of Rural Landscape Management in CVNP

As the park was being established in the mid-1970s, resources, including agricultural lands and structures, were quickly being purchased through federal land acquisition procedures with the primary focus of protecting land from development pressures. Once acquired, farm structures and farm fields were not given priority attention. Most of the farm buildings were allowed to stand vacant and deteriorating, and farm fields were untended and prone to ecological succession. While undeveloped lands in natural condition were seen to benefit from this "hands off" management strategy, farm properties suffered severe negative impacts. Attempts to address this shortcoming in rural landscape management were slow and haphazard, and usually occurred in a very opportunistic fashion.

Leaving the newly acquired buildings vacant made them difficult to maintain, so initially some of them were used for temporary employee housing. When this practice ended in the mid-1980s, longer-term building use was evaluated with historically significant buildings given priority for utilization. CVNP rehabilitated some of the buildings for park operations and entered into agreements with individuals or park partners for the use of other buildings. Buildings that did not have a proposed use, particularly the non-historic buildings, were instead targeted for demolition or were neglected and subsequently deteriorated.



A historic view (1900) looking northwest at the Waterman Farm, currently known as Heritage Farms. This farm is within park boundaries but is still privately owned and operated by the Haramis family. The park has an agricultural easement on the property to help promote the continuation of farming in the Valley.

Not only were buildings in jeopardy, but so too were the associated lands. The fields were either threatened by potential development pressures or were overgrowing. In order to alleviate development pressures, the park acquired agricultural easements from private property owners within the park boundary who appeared to have viable and longstanding enterprises. These agricultural easements restricted the active use of those fields to agricultural use for perpetuity. These six easements prevented development on 250 acres.

In the 1980s and 90s, CVNP initiated several additional efforts to manage agricultural fields so that the approach to rural landscape management would be less opportunistic. Some of these efforts led to subsequent action, while many did not. In the early 80s, approximately 400 acres of land were designated as open space to be maintained either through agriculture or mowing. Farmers who were interested in using some of those 400 acres for agriculture were issued short-term leases. Contractors mowed the remaining field acres. In the early 90s, agricultural leasing workshops were held, which led to the suggestion that the park expand the number of acres to be maintained as open space from about 400 to 1000. A study was done in 1991 that led to the development of a map that depicted the preferred action for many of the open fields in the park. The potential uses included agricultural use, pasture, haying, mowing, and natural succession. However, throughout the 90s, the demand for leasable, farmable land in the park was generally quite low. So in order to keep some level of agriculture in the park, whenever a local farmer requested the use of a field, a short-term lease was typically granted.

The most recent effort to address rural landscape management is probably the most significant. In order to develop CVNP's first long-term, comprehensive, agricultural plan, park managers conceptualized the creation of a new program called the Countryside Initiative. This program would potentially work to rehabilitate structures and restore not only the agricultural lands still surviving in the park, but also the 'sense of place' commonly associated with the Cuyahoga Valley.

To help develop and facilitate this program, the park assisted with the formation of a nonprofit partner, the Cuyahoga Valley Countryside Conservancy (CVCC). The park has established a Cooperative Agreement with the CVCC. CVNP, in cooperation with the CVCC, advertised a Request for Proposals in January 2001 for five farmsteads that were to be farmed using sustainable agriculture practices. The park has recently negotiated three leases as a pilot project for the new Countryside Initiative. The expansion of this small pilot program is outlined as Alternative 2 (the Preferred Alternative) in this document.

1.2.3. Farming in CVNP Today

Today, despite sporadic attempts at rural landscape management, the agricultural heritage of the Cuyahoga Valley Region continues to some degree within park boundaries. Farming and other agricultural activities still occur on both federal and non-federal parkland. Currently, a total of approximately 1,180 acres of the national park (3.6 percent) are farmed. All agricultural activity within the park is depicted on the maps at the end of Chapter 2.

Private farmers or other groups on non-federal lands conduct half of this farming (590 acres). Private farms primarily consist of cornfields, conifer trees, pumpkin patches, hay fields, and horse pastures. One such operation, Hale Farm & Village, includes approximately 44 acres of farmland. It is managed by Western Reserve Historical Society as a living history farm set in the year 1848. Additionally, approximately 40 acres owned by Metro Parks, Serving Summit County are currently leased for corn production to a local farmer. Cleveland Metroparks also manages the Brecksville [Horse] Stables in the Brecksville Reservation consisting of approximately seven acres. Some of these private lands continue to be farmed in part due to agricultural easements held by the NPS (250 acres). Agricultural use on easements consists primarily of conifer and deciduous tree farms, daylily farms, pumpkin patches, and cornfields.

Several farmers currently operating within the park boundaries not only farm on their own private land, but also supplement their enterprises by using federal land. These operations include, among others, Heritage Farms, Carriage Trade Farms, Luther Farms, Swan Farm, Polcen Farm, and Szalay's Sweet Corn Farms. Approximately 590 acres of federal land are farmed under various agreements that are detailed in Section 1.2.4.5. Most of these areas are leased to absentee farmers for use in their operations. Most fields are planted in crops such as corn, hay, pumpkins, alfalfa, oats, and conifer trees, with corn and hay being the most prevalent. Some fields are used as pastures for horses, dogs, sheep, or goats. Most operations are either primarily crop or livestock-oriented although



This upland cornfield depicts typical current agricultural use in the park under special use permits.

a few integrated crop/livestock operations are being implemented. These integrated farms focus on a specific type of farming such as vineyards, berries, herbs, poultry, or perennial flowers, but then incorporate other crops or livestock.

1.2.4. Management Objectives and the Rural Landscape

1.2.4.1. Introduction

Section 1.1.2 mentions that rural landscape management is addressed in various park-planning documents, but that it has not been achieved to its full potential. This section is an examination of those park-planning documents and their guidance on rural landscape management. Overall guidance on NPS management objectives is provided for in the *Management Policies* (NPS 2001e), *Cultural Resources Management Guideline* (NPS 1997a) and *Natural Resources Management Guideline* (NPS 1991). This section provides the basis for answering the fundamental questions of *how* and *to what extent* should farming occur in CVNP and it provides the framework for understanding the components of the alternatives in the next chapter.

1.2.4.2. National Park Service Policies on Preserving Rural Landscapes

The NPS *Management Policies* state that "cultural landscapes will preserve significant physical attributes, biotic systems, and uses when those uses contribute to historical significance" (NPS 2001e, p. 56). Furthermore, when land use is a primary reason for the

significance of a landscape, the objective will be "to balance the perpetuation of use with the retention of the tangible evidence that represents its history". Protection of the properties in cultural landscapes, especially historic properties, is mandated by NPS policy.

One historic land use in national parks is agriculture. Agricultural properties that once contributed to a cultural landscape may be preserved, rehabilitated, or restored through agricultural uses. A recent survey of NPS units identified 90 parks that have agricultural landscapes that comprise a significant component of the overall park cultural landscape (McEnaney 2001). Agricultural uses in parks are permitted "in accordance with the direction provided by a park's enabling legislation and general management plan" (NPS 2001e, p.93).

The policies further state that agricultural activities, including demonstration farms, prescribed to meet a park's management objectives, will be allowed if they "do not result in unacceptable impacts on park resources, values, or purposes, conform to activities that occurred during the historic period, and support the park's interpretive themes" (NPS 2001e, p.93). Agricultural uses that do not conform to those in practice during the historic period may be allowed if they "contribute to the maintenance of a cultural landscape" or "are carried out as part of a living exhibit or interpretive demonstration" (NPS 2001e, p.93). The NPS may also allow livestock use "when required in order to maintain a historic scene".

1.2.4.3. Rural Landscape Management Planning in CVNP

Congress created Cuyahoga Valley National Recreation Area (now Cuyahoga Valley National Park) in 1974 for the purpose of "preserving and protecting for public use and enjoyment, the historic, scenic, natural and recreational values" of the Cuyahoga Valley, thereby maintaining "needed recreational open space necessary to the urban environment" (Public Law 93-555). Park managers were directed by Congress to use the park resources "in a manner which will preserve its scenic, natural, and historic setting while providing for the recreational and educational needs of the visiting public".

One significant scenic and historic park resource discussed throughout early park planning documents is the rural landscape. In the park's first planning efforts, a draft *Environmental Assessment* (EA) for the *General Management Plan* (GMP) was completed (NPS 1976). One of the requirements when preparing an EA is that public comments be gathered and considered. In terms of the management goals to be included in the GMP, one of the primary goals suggested by the public was a recommendation that the park "preserve agricultural lands and the traditional rural atmosphere, lifestyles, and traditions of the Cuyahoga Valley" (p.3), in other words, a 'sense of place'. Specific objectives under this goal included taking "appropriate actions to perpetuate agricultural open space and related land uses in the valley" and supporting "traditional farming-related activities". Another goal was to "preserve significant cultural resources" with an expressed objective to "stabilize, restore, or reconstruct significant historic and

prehistoric sites and structures". These suggested goals were explicitly incorporated into a refined and restated set of management objectives for the park. The preservation of all historic and cultural resources, including agricultural lands and activities, was combined into one generalized objective: "To preserve significant historic or prehistoric sites and structures" (p.103).

The concept of 'sense of place' was not articulated as such when the park's initial planning documents were being drafted, but the concepts expressed above can be combined into today's more commonly used and understood phrase... 'sense of place'. The National Trust for Historic Preservation defines 'sense of place' as those things that add up to a feeling that a community is a special place, distinct from anywhere else (Stokes et al. 1997). When the federal government protects an area as part of the National Park System, this defining characteristic – being distinct from anywhere else – is an important criterion.

As goals and objectives for park management began to take shape, so too did the alternatives for the implementation of the GMP. Certain actions were associated with each alternative, but several actions were considered to be common to *all* alternatives for managing CVNP. These actions would be taken regardless of which park management plan alternative was finally implemented. One action stated "where possible, all lands currently in agricultural production will remain so under agricultural easement" (p.111). Additionally, when the final *General Management Plan* (NPS 1977) was adopted, the cultural resource management section noted that "the rural character of America is readily communicated in the agricultural landscapes that have survived to the present day. These and other valuable resources suggest both careful preservation and imaginative interpretation to ensure that they become an integral part of the Cuyahoga environment" (p.35). Indeed, agriculture is also presented as an important historical theme for interpretative programs (p.44). The preservation of agriculture in the park was clearly one of the guiding principles for general park planning.

The park's most recent *Statement for Management* (NPS 1993c) reiterates the need to protect the rural landscape by outlining specific objectives. These objectives include the need to "creatively develop uses for the various historic structures that presently stand vacant or that will become vacant in the future as retentions and/or life estates expire". Another objective states the need to "continue to expand/improve the cultural landscape preservation effort at Cuyahoga Valley. Research followed by appropriate implementation is required to meet the recommendations outlined in the park's [Cultural Landscape Report]" (p.52).

Lastly, the park's *Resources Management Plan* (NPS 1999) includes specific goals and objectives for protecting cultural resources, including Goal 11C - "Encourage agricultural use of designated parklands to preserve this culturally significant land use pattern." Two objectives under this goal are to "develop a management strategy that enables economically viable farming consistent with park's cultural and natural resource values" and "utilize historic farmhouses, barns, and outbuildings as part of farming operations".

1.2.4.4.Documenting and Managing the Rural Landscape in CVNP

The *General Management Plan* (GMP) mandated an inventory of cultural resources to specifically identify and evaluate all resources requiring preservation. To achieve this goal, the park developed several key documents. The park first developed a *Land Protection Plan* (LPP) (NPS 1984) to describe resource preservation goals and methods. The LPP states that "land historically used for agricultural purposes within the recreation area represents an important cultural resource which must be protected" (p.25). The LPP recommended protecting specific tracts of land through agricultural easements, acquisitions, and leaseback for farming. (A thorough explanation of these and other CVNP rural landscape management methods is in Section 1.2.4.5.) The LPP is periodically updated, most recently in 1994.

In 1982, the first *Building Utilization Plan* (BUP) was written (as cited in NPS 1994). This plan was updated in 1986 (as cited in NPS 1994) to include an inventory of park buildings and an analysis of requirements for proposed building uses. This plan also identified a phased strategy to preserve and use buildings that contributed to the park's purposes as stated in the enabling legislation. In 1994, the plan was again updated to recommend a management strategy for every NPS-owned building in the park. Specifically, the buildings were inventoried to determine historic significance, scene-setting value, public use potential, or potential for administrative use. Buildings that contributed to the scenic, historic, or cultural values of the park were given priority for utilization.

In 1987, a *Cultural Landscape Report* (CLR) was completed to "identify the cultural landscape...and to recommend methods of protecting this important historic and scenic value" (NPS 1987a, p.1). Agriculture was one of six primary cultural landscape themes identified in the document. Noted of special importance is the "preservation of former farm fields". The CLR states that these areas "must be kept open to evoke the rural character for which the [park] was created, in part, to preserve" (p.1). The CLR suggests that "historic agricultural buildings which remain should be rehabilitated" and "the associated farm fields should be leased for agricultural production or, at minimum, be regularly mowed to keep them open" (p.23). The CLR lists all tracts that "historically contribute" to the agricultural theme of the park, and prescribes active management through continued agricultural use, mowing, and also allowing some areas to proceed into succession.

Currently, an update of the CLR is underway. The *Cultural Landscape Thematic Overview and Methodology Guide* (NPS 2000a) was published in April 2000 to outline the goals of the new document. In particular, the updated CLR will be divided into sections to address each specific historical theme that helps to define the cultural landscape of CVNP. The historical themes include Prehistoric and Indigenous Cultures; Settlement; Transportation; Agriculture; Industry; and Recreation. Draft versions of thematic CLRs for Transportation and Agriculture are being prepared at this time.

The NHPA requires the creation of a Cultural Landscape Inventory. The goal at CVNP is to document and evaluate the cultural landscapes that may have National Register eligibility. Currently, priority is being given to agricultural properties. Full descriptive reports have been completed or drafted for the Point, Jyurovat, Vaughn, and Parry farms.

1.2.4.5. Current Rural Landscape Management Methods in CVNP

Today, the rural landscape in CVNP is managed by a combination of management methods. The following is a list of the rural landscape management methods currently used in CVNP. A summary of current rural landscape management methods and the number of acres and structures associated with each are found in Table 1.2, at the end of this section. Appendix A contains a full inventory of all structural components of the rural landscape in CVNP including the tracts, properties, and structures, and how they are currently managed. The maps at the end of Chapter 2 depict the locations of these lands and structures.

Agricultural Easements: Currently, the same six agricultural easements mentioned in Section 1.2.2 exist, consisting of approximately 250 field acres and 17 structures.

Land Exchange: One farmstead consisting of seven structures, the Edward Cranz Farm, was traded to Hale Farm & Village under a land exchange authority which permits the NPS and other governmental agencies within the park to trade lands in order to meet mutual goals. The fields associated with this property were not owned by the NPS. Since this farm is listed on the National Register of Historic Places, a restrictive covenant accompanies the land exchange agreement to provide for future NPS management interest in the property.

Special Use Permits (SUP): SUPs assigned to absentee local farmers account for the majority of federal land presently in agricultural use. Most fields are hayed or planted in crops such as corn or oats (Table 1.1). Few livestock or equestrian operations exist and even fewer integrated crop/livestock operations exist. Several acres are also maintained as lawn. Most SUP farmers use conventional farming practices and crops, although more sustainable or organic practices have been used occasionally. In 2001-2002, approximately 461 acres of field are maintained through the issuance of 19 SUPs. Two of these 19 SUPs also permit the use of four buildings for agricultural purposes. In addition, seven SUPs lease 11 farm buildings for strictly residential purposes. The number of SUPs and total acreage leased changes dynamically as SUPs expire or are renewed with minor revisions. Agricultural field management often fluctuates between SUPs and NPS mowing (i.e., Vista Management).

Memorandum of Understanding (MOU): One MOU exists with The Humane Society of Greater Akron for the use of a farmstead including six buildings as well as the immediately associated field consisting of approximately three acres.

Table 1.1. Crops and Other Uses of 2001-2002 Agricultural Special Use Permits

<u>Crop / Cover*</u>	<u>Fields</u>	<u>Acres</u>
Christmas Trees / Pumpkins	3	5
Corn	22	182
Equestrian Uses	7	50
Hay (including alfalfa)	17	176
Hay & Corn / Oats / Winter Wheat	2	31
Herbs / Chickens	1	2
Lawn	2	5
Oats	1	10
Total	55	461

*Uses as reported by 2001-2002 SUP holders through personal interviews (June 2001) and 2001 pesticide applications. Actual SUPs, acreages and crop rotations may have varied slightly.

Concession Contracts: The Cuyahoga Valley Hostelling International - Stanford House is the park's only concession contract. It is for the joint use of two historically related farmsteads. The five buildings and surrounding residential lands are included in this contract. No associated fields are utilized.

Cooperative Agreements (CA): Two CAs related to farm properties are currently active in the park. The first agreement, Woodlake Field Station, is authorized only to use the farmhouse; the second agreement, CVCC, is authorized to use the entire farmstead, including three farm buildings as well as the immediately associated fields containing approximately 30 acres. These fields are to be used for agricultural purposes.

Historic Property Leasing Program (HPLP) Leases: Six HPLPs utilize old farm properties on terms ranging from 25 to 50 years. Twenty-three buildings are utilized, however, only one agreement also involves the use of an associated field, The Conrad Botzum Farmstead. This field is approximately 15 acres and will be used primarily for agricultural-related purposes. Other examples of HPLP establishments include the Inn at Brandywine Falls and The Crooked River Valley Inn and Conference Center.

New Leasing Regulations (NLR): Three farmsteads using 4 properties containing 10 structures and approximately 70 field acres are leased under this authority for the Countryside Initiative pilot project. Sustainable agricultural use is required as part of the project. These farms are just beginning operations in 2002 with plans for two integrated livestock and crop operations and a vineyard. For the purposes of this draft EIS, these lands and structures are considered currently managed, despite the temporary lack of farming activity on some lands at this time.



This barn is a contributing feature of the historic Jim Brown Farmstead. This farmstead is currently leased under HPLP and is being rehabilitated as a part of the Crooked River Valley Inn and Conference Center which will provide overnight accommodations. View looking northeast.

Non-Historic Leases: One non-historic lease exists for five buildings and the associated field of approximately eight acres, the Briar Rose Farm. Use is restricted to residential and equestrian unless approved by the NPS.

Park Utilization: CVNP still maintains and utilizes many of its own farm buildings and lands. For instance, 44 farm-related structures such as houses, barns, and outbuildings are currently maintained through various park operational uses. These operations include administrative and support facilities such as offices, ranger stations, maintenance facilities, visitor facilities, temporary housing, and storage. The park also utilizes 11 structures simply as scene-setters. These typically consist of smaller farm outbuildings, such as privies or corn cribs.

Vista Management: CVNP maintains remnant agricultural fields through clearing and mowing. CVNP crews are primarily responsible for field maintenance although contractors or volunteers may be utilized. Fields are generally mowed two times per growing season to control succession unless they are in high visitor use areas where a weekly mow is implemented. Clearing occurs as needed when the regular mowing cycle has been interrupted and known fields have become overgrown. Twenty-four fields comprising approximately 150 acres are maintained through mowing (NPS 2001f).

Additionally, the maintenance of certain habitat types (e.g., meadows, fields, prairie) expressly for native plants and wildlife could contribute to maintaining the appearance of agricultural open space in some cases. While natural processes are usually relied on to maintain native plant and animal species, the NPS may actively manage these ecosystem components when necessary and appropriate (NPS 2001e, p.34). In these situations, mowing schedules would be established to maintain optimum habitat for the species of interest. Currently, CVNP does not actively maintain open space in this manner but proposals to do so are included in the proposed action.



Fabbeo Barn is one of four properties included in the Countryside Initiative pilot project. This barn is associated with the Leyser Farmstead.

Table 1.2. Summary of Current Rural Landscape Management on Federal and Non-federal Land in Cuyahoga Valley National Park, Ohio**Non-Federal Land****Agricultural Open Space**

<u>Management Method</u>	<u>Acres</u>
Agricultural Easements	250

Structures

<u>Management Method</u>	<u>Total</u>
Agricultural Easements	14
Land Exchange	7

Total	21
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Federal Land**Agricultural Open Space**

<u>Management Method</u>	<u>Acres</u>
Special Use Permits	461.3
Memorandum of Understanding	3.3
Cooperative Agreements	30.3
Historic Properties Leasing Program	15.1
Non-Historic Lease	8.2
New Leasing Regulations	55.8
Vista Management	<u>150.4</u>

Total	738.6
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Structures

<u>Management Method</u>	<u>Total</u>
Special Use Permits	20
Memorandum of Understanding	6
Concessions Contract	5
Cooperative Agreements	4
Historic Properties Leasing Program	23
Non-Historic Lease	5
New Leasing Regulations	10
Park Utilization	46
Scene-setters	<u>11</u>

Total	130
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1.2.5. Problem Statement

Park managers faced rural landscape management challenges from the onset. At the time the park was created, small working farms still existed in the valley, but many were in declining condition and had been for several prior decades. Farmsteads, which were suddenly located within national park boundaries, were being converted to other purposes that did not necessarily coincide with the mission of the park. So to protect these lands and structures from the potential threat of future development, the NPS acquired them. But NPS ownership did not necessitate agricultural or any other use. Management components necessary to keep the acquired farmsteads in active use were not in place early in the park's history. As a result, many of the farm fields were lost to natural succession processes or wetland creation, and many of the buildings deteriorated or were demolished. Thus, the entire rural landscape has diminished over time and the valley's 'sense of place' was diminishing as well.

Preserving the rural landscape has always been a component of park management objectives, but it has been difficult to achieve because to date, no comprehensive approach has been developed to guide the management of the rural landscape. Rather, many different CVNP documents developed since the establishment of the park have proposed methods for managing certain elements of the rural landscape. This conglomerate of documents and management methods, described in the previous two sections, lacked focus. In turn, this lack of focus hampered the park's ability to utilize limited staff and funds efficiently and effectively for rural landscape management.

Several specific problems exist with the current methods that have been used by the park for rural landscape management. For instance, agricultural easements are expensive as the park purchases the development rights of the land to thwart any future development. Administration of the easements is also difficult since there are no on-going incentives for the private owner to cooperate with park goals. In addition, the easements do not protect against fields being lost to succession if the private owner should decide not to continue farming. The agricultural restriction relates only to allowable "active" use of the land. Thus, while agricultural easements are effective tools to prevent development of private property, they do not ensure the active pursuit of agricultural practices.

In the case of short-term agreements, the short-term nature itself is often detrimental. Since there is no long-standing commitment with the agreement holders, it is difficult to encourage capital investment or long-term stewardship. For buildings, this often results in minimal care and decline over time. For land, quick returns are sought which typically means monoculture crops of limited varieties are planted. These crops deplete the soil of nutrients, increase erosion, and homogenize the rural landscape scene. Dependence on chemical use is also common. Administering short-term agreements is also a laborious and expensive task for the park. Agreement turnover is high, as is the rate of renewal. Plus, the park receives less than market value for properties since these agreements are for short periods of time. Lastly, the concern exists as to whether or not the short-term use is actually the most appropriate use for meeting long-term park goals.

Of the various types of long-term agreements, the park has traditionally utilized the Historic Properties Leasing Program (HPLP) and non-historic leases in managing the rural landscape. Although somewhat successful, these types of leases are limiting. For instance, HPLP requires a leased property to be listed in the National Register of Historic Places, and the Secretary of the Interior's Standards for Historic Preservation must be followed. Non-historic leases, on the other hand, are issued on a lowest-bid basis, which decreases the park's ability to specify a preferred use of the property.

With the passing of the New Leasing Regulations, new long-term leasing opportunities exist that remove past limitations. For instance, historic *and* non-historic properties are both eligible for leasing through a request for proposal process. This allows the park to ensure specific uses for an increased number of properties including those that are and are not eligible for the National Register.

A continuing concern for park managers is that the number of buildings in the park, rural landscape-related or otherwise, exceeds the spatial needs for park utilization. Even when combined with short-term and long-term agreements, many buildings remain vacant and without a use. Without a use, it is unlikely that a structure will be rehabilitated, thus it may be destined for decline and eventual removal.

As part of vista management, the park currently manages many abandoned farm fields through mowing. Mowed, open fields provide rural character despite the fact that no agriculture is present. This lack of agriculture can at best maintain only an appearance of agriculture, as the traditional activity is not depicted. In addition, CVNP has not been able to mow all fields that have contributed to the rural landscape overtime. Thus, many fields have been lost to succession.

Lastly, CVNP has not typically managed farm structures and lands in a combined effort. Rather, buildings tend to have a specified use independent of the specified use of the land. There are only a few examples in the park that currently use the farm structures and associated lands jointly. Thus, overall, the image that is created is one of a fragmented, often derelict, landscape, rather than one of a cohesive image of a working, lived-in, rural landscape.

1.3. OBJECTIVES AND CONSTRAINTS

1.3.1. Objectives

Chapter Two of this document explains the alternatives that will be analyzed. In order for an alternative to be analyzed in this draft EIS, it had to meet the stated objectives; otherwise, it was dismissed (see Section 2.9).

The objectives listed here elaborate on the previously stated purpose of action found in Section 1.1.3. The purpose of this rural landscape management draft EIS is:

To implement a comprehensive management program that will more effectively and systematically preserve and protect the rural landscape resources in the park.

The preferred rural landscape management approach at Cuyahoga Valley National Park will...

1. *Continue the agricultural tradition* –Agricultural activity, or the appearance thereof, must be preserved in order to maintain agricultural open space and promote the historic character of the Cuyahoga Valley. Either active farming or open rural landscapes without active farming would be acceptable means of achieving this objective.
2. *Preserve scenic values* – CVNP’s enabling legislation mandates the preservation of scenic values, which include cultural and natural elements. The preservation of agricultural lands and structures that make up the park’s rural landscape will help achieve this objective, but any action must be balanced with effects on natural scenic values.
3. *Use environmentally sound practices* – NPS policies and practices promote responsible stewardship of the land. Because the proposed action described in this document will affect the park landscape broadly, environmentally sound practices are imperative.

1.3.2. Laws, Regulations, and Policies

The resources of CVNP are protected under the authorities of the National Park Service Organic Act of 1916 (16 U.S.C. § 1), the National Park System General Authorities Act (16 U.S.C. §§ 1a-1 et seq.), Part 36 of the Code of Federal Regulations (CFR), and the park's enabling legislation (Public Law 93-555).

1.3.2.1. The No Impairment Standard

The NPS Organic Act directs the NPS to manage the parks “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations”.

Both the NPS Organic Act and the General Authorities Act prohibit an impairment of park resources. NPS *Management Policies* (NPS 2001e, Section 1.4.5) states that an impact is more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is: 1) necessary to fulfill a specific purpose identified in the establishing legislation or proclamation of the park; 2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or 3) identified as a goal in the park’s general management plan or other relevant NPS planning documents. An impact would be less likely to constitute impairment to the extent that it is an unavoidable result of an action necessary to preserve or restore the integrity of park

resources or values, which cannot reasonably be further mitigated. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources.

The “park resources and values” that are subject to the no-impairment standard include: the park’s scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals. The NPS also includes the park’s role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system among the values subject to the no impairment standard.

1.3.2.2. Other Relevant Laws and Regulations

The following laws, regulations, and policies provide the legal framework authorizing decision-making regarding the management of the rural landscape on federal lands (see Appendix B).

The Antiquities Act of 1906 provided for protection of historic, prehistoric, and scientific features on federal lands, with penalties for unauthorized destruction or appropriation of antiquities; authorized the President to proclaim nation monuments; authorized scientific investigation of antiquities on federal lands subject to permit and regulations.

The Historic Sites Act of 1935, among other things, authorizes the NPS to “restore, reconstruct, rehabilitate, preserve, and maintain historic or prehistoric sites, buildings, objects, and properties of national historical or archaeological significance.”

The National Historic Preservation Act (NHPA) of 1966, as amended, declared historic preservation as a national policy and authorized the Secretary of the Interior to expand and maintain a National Register of Historic Places that would include properties of national, state, and local historic significance. The Act recommends that federal agencies proposing action consult with the State Historic Preservation Officer regarding the existence and significance of cultural and historical resource sites.

The National Environmental Policy Act (NEPA) of 1969, as amended, requires detailed and documented environmental analysis of proposed federal actions that may affect the quality of the human environment.

The Archaeological and Historic Preservation Act of 1974 (P.L. 93-291; 88 Stat. 174) amended the 1960 Reservoir Salvage Act; provided for the preservation of significant scientific, prehistoric, historic and archaeological materials and data that might be lost or destroyed as a result of federally sponsored projects; provided that up to one percent of project costs could be applied to survey, data recovery, analysis, and publication.

Public Law 93-555, an act to provide for the establishment of Cuyahoga Valley National Recreation Area, December 27, 1974. Section 4 (d) states that the Secretary, in consultation with the Governor of the State of Ohio, shall inventory and evaluate all sites and structures within the recreation area having present and potential historical, cultural, or architectural significance and shall provide for appropriate programs for the preservation, restoration, interpretation, and utilization of them.

The Clean Water Act of 1977 (also known as Federal Water Pollution Control Act Amendments of 1972, as amended) established the basic structure for regulating discharges of pollutants into the waters of the United States, required water quality standards and made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions.

The Endangered Species Act of 1978, as amended, prohibits federal actions from jeopardizing the existence of federally-listed threatened or endangered species or adversely affecting designated critical habitat. Federal agencies must consult with the U.S. Fish and Wildlife Service to determine the potential for adverse effects. Federal agencies are also responsible for improving the status of listed species.

The Archaeological Resources Protection Act (ARPA) of 1979 (P.L. 96-95; 93 Stat. 712) defined archaeological resources as any material remains of past human life or activities that are of archaeological interest and at least 100 years old; required federal permits for their excavation or removal and set penalties for violators; provided for preservation and custody of excavated materials, records, and data; provided for confidentiality of archaeological site locations; encouraged cooperation with other parties to improve protection of archaeological resources. Amended in 1988 to require development of plans for surveying public lands for archaeological resources and systems for reporting incidents of suspected violations.

The Farmland Protection Policy Act (FPPA) of 1980 was created to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. These regulations address the rights of lineal descendants, Indian tribes, and native Hawaiian organizations to Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. They require federal agencies and institutions that receive federal funds to provide information about Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony to lineal descendants, Indian

tribes, and native Hawaiian organizations and, upon presentation of a valid request, dispose of or repatriate these objects to them.

Executive Order (EO) 11593 instructs all federal agencies to support the preservation of cultural properties and directs them to identify and nominate to the National Register cultural properties under their jurisdiction and to “exercise caution...to assure that any federally-owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered.”

EO11988 directs federal agencies to protect, preserve, and restore the natural resources and functions of floodplains; avoid the long- and short-term environmental effects associated with the occupancy and modification of floodplains; and avoid direct and indirect support of floodplain development and actions that could adversely affect the natural resources and functions of floodplains or increase flood risks.

EO 11990 directs federal agencies to minimize impacts and mitigate the destruction, loss, or degradation of wetlands; preserve, enhance and restore the natural and beneficial values of wetlands; and avoid direct and indirect support of new construction in wetlands.

EO 12898 directs federal agencies to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

EO 13112 requires that federal agencies act to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Part 36 of the CFR provides for the proper use, management, government, and protection of persons, property, and natural and cultural resources within areas under the jurisdiction of the NPS. However, some particularly relevant sections are noted here:

36 CFR 18 (NHPA of 1966), “Leases and Exchanges of Historic Property,” govern the historic property leasing and exchange provisions of this law.

36 CFR 60 (NHPA and EO 11593), “National Register of Historic Places,” addresses concurrent state and federal nominations, nominations by federal agencies, and removal of properties from the National Register.

36 CFR 63 (NHPA and EO 11593), “Determinations of Eligibility for inclusion in the National Register of Historic Places,” establishes process for federal agencies to obtain determinations of eligibility on properties.

36 CFR 65 (Historic Sites Act of 1935), “National Historic Landmarks Program,” establishes criteria and procedures for identifying properties of national significance,

designating them as national historic landmarks, revising landmark boundaries, and removing landmark designations.

36 CFR 67 (Historic Preservation Certification Pursuant to the Tax Reform Act of 1976, the Revenue Act of 1978, the Tax Treatment Extension Act of 1980, and the Economic Recovery Tax Act of 1981), establishes procedures whereby owners or holders of long-term leases for old and/or historic buildings may obtain certification to gain federal tax credits for rehabilitation.

36 CFR 68 (NHPA) contains the Secretary of the Interior's standards for historic preservation projects, including acquisition, protection, stabilization, restoration, and reconstruction.

36 CFR 79 (NHPA and ARPA). "Curation of Federally-owned and Administered Archeological Collections," provides standards, procedures and guidelines to be followed by federal agencies in preserving and providing adequate long-term curatorial services for archeological collections of prehistoric and historic artifacts and associated records that are recovered under Section 110 of the NHPA, the Reservoir Salvage Act, ARPA and the Antiquities Act.

36 CFR 800 (NHPA and EO 11593), "Protection of Historic and Cultural Properties," includes regulations of the Advisory Council on Historic Preservation to implement Section 106 of the NHPA as amended, and presidential directives issued pursuant thereto.

40 CFR 1500-1508 (Council on Environmental Quality NEPA regulations of 1978) - provides Regulations for Implementing the Procedural Provisions of NEPA.

43 CFR 3 (Antiquities Act) establishes procedures to be followed for permitting the excavation or collection of prehistoric and historic objects on federal lands.

43 CFR 7, Subparts A and B (ARPA, as amended), "Protection of Archaeological Resources, Uniform Regulations" and "Department of the Interior Supplemental Regulations," provides definitions, standards, and procedures for federal land managers to protect archaeological resources and provides further guidance for Interior bureaus on definitions, permitting procedures, and civil penalty hearings.

Special Directive 82-12, "Historic Property Leases and Exchanges," elaborates on the leasing and exchange of historic properties under Section 111 of the NHPA of 1966 as amended.

1.4. SCOPING PROCESS AND PUBLIC PARTICIPATION

1.4.1. Scoping Activities

When a federal agency considers taking an action that may impact the human environment, NEPA triggers an information collection process by which all relevant issues and concerns, as well as alternatives to the action, are collected. This process, which is called "scoping", includes the review of all relevant planning and management documents, consultation and discussion with interested agencies, tribes and organizations, and public input. The scoping process for this document is described in this section and summarized in Appendix C.

Since 1999, the NPS has conducted preliminary internal and external scoping activities to discuss the management of the park's rural landscape by meeting with other agencies, organizations, and individuals. Through these preliminary scoping activities, the NPS proposed a change in the rural landscape management practices at CVNP.

When the proposed changes were identified as potentially affecting the human environment, the NPS decided to prepare an environmental assessment for the proposed action in May 2001. Environmental Assessments (EA) are written when the potential environmental impacts of an action are unknown. Formal scoping activities began for the EA in May 2001. Letters to natural and cultural resource agencies and organizations were mailed and a press release to major media outlets was issued. The letters and releases suggested a range of alternatives for rural landscape management. Twenty comments were received and several newspapers carried editorials and letters from the public on the issue. The NPS soon decided that due to the scale and complexity of the proposed action and the possibility that significant impacts may result from the action, the preparation of an EIS would be required. Public and agency comments received during the EA scoping process were summarized and kept for use in the EIS scoping process.

The NPS initiated the process of preparing an environmental impact statement for rural landscape management in CVNP by publishing a Notice of Intent (NOI) in the *Federal Register* on July 27, 2001. The NOI suggested a range of alternatives for rural landscape management, noted that public meetings were to be scheduled, and directed the public to a special park website for more information. Subsequently, a press release containing similar information was issued to approximately 160 local media contacts and to a list of 400 individuals who had expressed specific interest in park agricultural activities. The press release and the summary of issues and alternatives identified during the EA scoping process were placed on the park website. Additionally, letters specifically requesting input were mailed to 93 natural and cultural resource agencies, agricultural groups, local municipalities, universities, tribes, organizations, and 26 individuals. Two public open houses held on August 22, 2001 were attended by approximately 40 people. Public input was accepted until September 11, 2001. Seventeen written comments were received.

1.4.2. Environmental Issues Identified During Scoping and Evaluated

The public and other agencies identified many environmental issues associated with the proposed action during the scoping process. NEPA requires that only important issues, (i.e., those with the potential for significant or severe impacts) are to be discussed in an environmental impact statement, and that the discussion of unimportant issues be minimized or eliminated. Table 1.3 includes a summary of rural landscape management issues considered to be important and their corresponding impact topics.

Table 1.3. Environmental Issues to be Evaluated and Corresponding Impact Topics

Description of Environmental Issue or Concern Related to Rural Landscape Management Activities	Corresponding Topics in Chapter 4: Environmental Consequences
New construction, modifications to existing structures and lands, and changes in management methods may affect cultural resources such as historical and non-historical sites and structures, cultural landscapes, and archaeological resources.	Impacts on Cultural Resources Section 4.1
Park structure use and availability may change availability for other uses.	Impacts on Cultural Resources Section 4.1
Native vegetation may be adversely affected by reducing and changing habitats, increasing fragmentation of habitats, and through direct physical disturbance.	Impacts on Vegetation Section 4.2
Native wildlife distribution and behavior may be adversely affected by changing habitat and food availability, increasing fragmentation of habitats, fence construction, and through physical, visual, or noise disturbances.	Impacts on Wildlife Section 4.3
Ecosystems may suffer undesirable impacts from the introduction and facilitation of exotic species and diseases, hybridization between crops and livestock and native species, or through disproportionate beneficial effects on certain native species.	Impacts on Wildlife Impacts on Vegetation Sections 4.2 & 4.3
Rare, threatened or endangered wildlife and vegetation and their habitats may be impacted.	Impacts on Wildlife Impacts on Vegetation Sections 4.2 & 4.3
Human-wildlife conflicts may increase with increased agricultural activity.	Impacts on Wildlife Impacts on Social Environment Sections 4.3 & 4.5
The quality and quantity of surface and ground water resources may be diminished through encroachment on wetlands and riparian areas, use of floodplains, increasing pesticide and nutrient run-off, and drawing water for farm uses.	Impacts on Water Resources Section 4.4
Visitor and employee safety may be affected by increases in the presence of guardian animals, electric fencing, and human-wildlife conflicts.	Impacts on Social Environment Section 4.5
The quality of visitor experiences may be affected by changes in scenic values and aesthetics.	Impacts on Social Environment Section 4.5
Visitors may experience changes in recreational and educational opportunities.	Impacts on Social Environment Section 4.5
Local municipalities, current farmers and leaseholders, and local businesses may be economically affected by the addition of new farms to the park.	Impacts on Social Environment Section 4.5

1.4.3. Issues Considered But Not Evaluated Further

If an issue was considered to be outside the scope of this environmental impact statement, or the best available scientific evidence suggested that it would experience only negligible impacts, it was eliminated from further study, as required under NEPA. The issues not evaluated further follow.

Appropriateness of Agriculture in National Parks. Some members of the public have questioned whether agriculture or farming activities is appropriate or authorized in a national park. As discussed in Section 1.2.4.2, NPS policy permits agricultural activities. Section 1.2.4.3. outlines the specific park mandate for preserving the historical activity of agriculture in CVNP. This issue will not be considered further in this draft EIS.

Impacts on Floodplains. The proposed action may result in minor changes in the vegetative characteristics of the Cuyahoga River that could affect floodplain function. Of more than 3,800 acres of the Cuyahoga River's 100-year floodplain in the park, the proposed action would only place an additional 1 percent of the floodplain (approximately 45 acres) into active management. All managed areas would remain largely vegetated and otherwise largely undeveloped. Since no new construction or increases in impervious surfaces are anticipated in the floodplain under the proposed action, any impacts on floodplain function are considered negligible and will not be assessed further. Any unforeseen new construction in the 100 or 500-year floodplain would undergo appropriate site-level environmental review as required under EO 11988 and NEPA.

Impacts of Noise, Odors, and Dust. The proposed action may result in temporary, localized minor noise, odor, and dust disturbances for visitors and park staff from mowers or farm machinery, livestock, audio wildlife deterrents and other agricultural practices. The impact on humans is considered negligible. The impacts of noise on wildlife are discussed in Section 4.3 - Impacts on Wildlife. Noise impacts from specific recreational activities such as concerts or festivals that might be held on farmsteads will be reviewed as is done for other such activities on park land through individual NPS Special Use Permit issuance.

Impacts of Water Use. The proposed action may result in the drawing of water from the Cuyahoga River and its tributaries and from groundwater sources. Such uses will comply with NPS Management Policies (NPS, 2001e, Section 4.6.2) and relevant Ohio water rights laws. A reasonable use doctrine will be followed to ensure that park uses of water do not adversely affect downstream uses. As such, no discernable impacts on surface waters or groundwater are expected from the proposed action. The use of farm ponds as water sources is analyzed in Section 4.4 - Impacts on Water Resources.

Impacts of Food Production. The proposed action may increase the sale and distribution of foods within the park. It is possible that this increase in food production could increase impacts on public health. Any farming enterprise engaging in food preparation would be subject to the appropriate State, County and local government laws and regulations regarding handling, preparation, distribution, and other food safety-

related issues. As a result, these impacts are considered negligible and will not be discussed further.

Impacts on Employee Health and Safety. The proposed action may result in an increase in health and safety risks for NPS employees or contractors involved in building rehabilitation and field clearing or mowing. Changes in the landscape (e.g., new fencing) could lead to worker accidents. Since the NPS is subject to the requirements of the Occupational Safety and Health Administration and regularly scheduled worker safety training and updates on new construction are ongoing, these impacts are expected to be negligible and will not be discussed further.

Impacts of Vehicular Traffic Changes. The proposed action may result in a slight increase in farm-related traffic along some roads and park trails compared to current levels. Additional mowing equipment and farm machinery may travel along park roads and trails periodically to access fields not associated with other access routes. Increased visitation to view farms or purchase farm products may increase road traffic levels. Temporary, localized short-term changes in traffic patterns associated with special farm events may briefly disrupt traffic flow. Any of these traffic changes may cause brief, temporary delays for park commuters and may somewhat increase vehicle-related wildlife mortality. Any such adverse impacts related to changes in traffic are considered to be negligible and will not be discussed further.

Impacts from Lead Paint Removal. Lead paint removal will occur during structure rehabilitation and property maintenance under all alternatives. Since standard removal procedures adhere to the CVNP "Lead-Based Paint Abatement" (June, 2001) guidelines that follow the Secretary of the Interiors Standards for Historic Preservation and are based on NPS Preservation Briefs, adverse impacts are considered to be negligible and will not be discussed further.

Wildlife Diseases. The potential for spread of diseases between livestock and wildlife populations is expected to increase primarily for Alternatives 2 and 4, in which farming through long-term lease or by NPS may increase the amount of livestock present in the park. However, most important livestock diseases such as foot and mouth, brucellosis, chronic wasting disease, avian flu or avian cholera, are more often initially transmitted among livestock or from wildlife to livestock rather than from livestock to wildlife. Occurrence of most of these diseases is monitored closely in livestock in the U.S. It is probable that all livestock owners under these two alternatives would take precautions to immunize or otherwise protect their animals from these diseases, thereby reducing or eliminating the potential for infection of wildlife from livestock.

The number of domestic dogs in the park could also be increased under Alternatives 1 or 2, particularly if guardian dogs are used frequently as wildlife deterrents. Rabies, distemper, and parvo virus could be spread between wildlife and domestic dogs. However, this increased number of dogs is expected to be small relative to the population of dogs in and around the park. Also, dog owners are all expected to comply with immunization requirements, again reducing the potential for spread of disease to wildlife.

For these reasons, the potential for increased risk of diseases to wildlife is expected to be negligible or absent under the proposed alternatives and it will not be analyzed further.

Feral Livestock and Livestock Hybridization with Wildlife. The increased number of livestock expected in Alternatives 2 and 4 could increase the potential for escaped livestock that could hybridize with wildlife species. The greatest risk of this probably comes from domestic turkeys or other poultry that could conceivably hybridize with wild populations. However, it is highly unlikely under any alternatives that poultry can truly be free-ranging and still survive predation from coyotes, raccoons, or other wildlife. Thus, under all alternatives farmers with livestock will need to employ methods (fencing, penning) to prevent depredation and thereby also minimize escape potential. Although potential for isolated incidences of livestock escapes may still exist, (indeed some domestic fowl are known to inhabit the park), the impacts of a few escaped individuals (if they actually survived to breed) on wildlife population genetics are expected to be negligible or absent.

Increased numbers of dogs in alternatives 1 and 2 could increase chances of coyote-dog (“coy-dog”) hybridization. Coy-dogs are supposedly more aggressive and pose greater danger to humans, pets, and livestock than coyotes. However, the abundance of coy-dogs in Ohio is estimated to be less than 3 percent of the entire coyote population (Weeks et al. 1990). Also, as stated above, the relative increase in numbers of dogs under these alternatives should be minimal. Thus, the risk of hybridization and potential detriment to the gene pool of individual wildlife species is expected to be negligible or absent under all alternatives and will not be further addressed.

Impacts on Prime and Unique Farmland. The proposed action may include the restoration and active management of land that may be identified as “prime and unique farmland” under the FPPA. However, no “unnecessary and irreversible conversion of farmland to non-agricultural uses” is planned under this action. Therefore, no compliance with the FPPA is required. The specific effects of the proposed action on all farmland resources in the park are analyzed throughout this document.

Other Mandatory EIS Topics. No significant issues regarding energy requirements and conservation potential, urban quality, socially or economically disadvantaged populations (Environmental Justice - Executive Order 12898), or urban quality were identified during scoping. No World Heritage sites, sacred sites, or Indian Trust Resources exist within the park. One National Natural Landmark exists in the park (Tinker’s Creek Gorge), but it is not located within or near the proposed project area. These topics will therefore not be addressed further.

2. THE ALTERNATIVES

2.1. PROGRAMMATIC APPROACH

This draft EIS addresses the programmatic issues of developing a new approach to rural landscape management for CVNP. It is intended to help define broad programmatic approaches, policies, and resources affected by the proposed action and assess the environmental impacts of the alternatives at that level. As a programmatic document, it is fully expected that additional environmental compliance at the site level would be required to address potential environmental concerns of issues not yet identified. This process is called 'tiering' and is appropriate "to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe" (40 CFR 1508.28). Issues that are not considered 'ripe' may include, for example, the specific outbuildings that may be added to specific properties or farm operating plans detailing specific fields to be used, crops to be planted, and livestock to be grazed. Any site-specific issues not clearly addressed in the draft EIS will be reviewed and addressed when appropriate through subsequent compliance actions as required by federal law and NPS policy.

2.2. METHODOLOGY

To develop the alternatives, the specific components of the rural landscape available for management were first identified and defined. Discrete management goals were developed based on the available rural landscape components. These components and goals are discussed in Section 2.3.

The review of park planning documents, consultation with NPS staff, other agencies and organizations, and public scoping allowed for the development of a number of alternatives that addressed the stated project objectives. All alternatives that met these objectives, fulfilled the purpose for taking action, complied with legal or regulatory mandates of the agency, and were technically and economically feasible are included in the full analysis in this document. All alternatives presented in this draft EIS are subject to the laws and regulations presented in Section 1.3.2 and the NPS requirement to not impair park resources.

Actions common to all the alternatives are described in Section 2.4. The alternatives developed and considered for analysis are then described in Sections 2.5 - 2.8. Each alternative differs in the management emphasis and type of land management practices utilized. Significant management tools to be used in each alternative were identified and grouped by type. Details including who implements the land management actions, who is responsible for maintenance of structures, types of fencing and new construction expected, changes in pesticide uses, and the costs to the agency are described for each alternative. Alternatives that were considered but not analyzed are detailed in Section 2.9.

2.3. DEFINING GOALS FOR THE RURAL LANDSCAPE

The rural landscape in CVNP is composed of agricultural open space and associated structures. Federally-owned lands and structures existing within the boundary of CVNP are the subject of this draft EIS. Earlier inventories of these resources were completed in the 1987 CLR and the 1994 BUP. Since these earlier inventories, additional lands and structures have been acquired, in some cases outside of the earlier park boundary. In some areas, succession has been permitted to occur, reducing the amount of available open land. Buildings have been lost to disuse and decay or demolition. These changes have left CVNP with a slightly different set of rural landscape components than those identified in earlier planning documents.

Currently available open space and structures that may be utilized for rural landscape management activities are briefly described and defined in this section. A full description of how these elements were identified and management goals were defined is found in Appendix D.

2.3.1. Management Goal for Agricultural Open Space

Agricultural open space is defined for this draft EIS to be approximately 1,345 acres of federal land (7 percent). This includes a total of 208 areas ranging in size from 0.009 acre to 75.5 acres in size (mean = 6.4 acres). These areas are comprised primarily of agricultural areas originally identified in the 1987 CLR that remain open today, but includes other currently available open space. The maps at the end of this Chapter depict the locations of these land parcels.

Currently, the NPS manages approximately 740 acres using one of the methods described in Section 1.2.4.5. The remaining 605 acres of available open space are not currently actively managed for rural landscape value. The proposed action would designate these areas for mowing or potential agricultural use.

2.3.2. Management Goal for Structures

A total of 85 properties with 267 structures contribute to the rural landscape in CVNP (Appendix A). The maps at the end of this Chapter depict the locations of these properties. A total of 246 structures are NPS-owned. Some properties (27) that contribute to the rural landscape have an existing use and management method that park managers view as long-term and unchanging, while others are clearly available for modified and new uses. Additionally, life estate and retention properties will eventually be turned over to the park and therefore may be considered for future uses (Appendix D).

Fifty-eight properties consisting of 175 structures are considered to be available for modified management under the proposed action using the various methods described in the alternatives. Specifically for Alternative 2, properties were characterized as having high, low, or no potential for becoming part of an active farmstead. Twenty-three

properties were identified as having high farmstead potential while 32 are considered low farmstead potential, and three as no potential. This assessment was largely qualitative based upon location of the structures with respect to available open space, number of outbuildings, historical significance, and proximity to other potential farmsteads. The overall management goal for structures is to protect all structural components of the rural landscape.

2.4. ACTIONS COMMON TO ALL ALTERNATIVES

2.4.1. Project Scope

All alternatives have the same objectives as described in Section 1.3.1. In addition, park goals related to agricultural lands and structures as described in the previous section are consistent for all alternatives. As such, no quantifiable difference in scope exists between the alternatives. The No Action alternative (also referred to as Alternative 1 or 'status quo') in this draft EIS is actually a continuing action that has the same goals as the action alternatives (Alternatives 2-4). However, implicit in Alternative 1 is the assumption that NPS goals for landscape management are not likely to be achieved under the status quo approach. The actual scope for the No Action alternative is therefore not entirely consistent with the other alternatives. A full explanation of Alternative 1 is in Section 2.5.

2.4.2. Policies, Protocols, and Monitoring

Each alternative will conform to all applicable laws, regulations, NPS guidelines, policies and procedures. Park policies specific to rural landscape management and agricultural activities are described in detail in Appendix B. All alternatives will conform to these policies. Monitoring efforts that will take place to ensure compliance with these policies are also described in Appendix B.

It is possible that some actions proposed under various alternatives do not conform entirely to all current applicable laws, regulations, guidelines or policies. However, the NPS must still consider such alternatives if they are otherwise feasible (CEQ "40 Questions"; Federal Register 46:18026). Should an alternative be selected that includes elements that conflict with such laws and policies, the NPS will seek and implement the appropriate remedy before taking such actions.

2.4.3. Common Vista Management Actions

In order to minimize and mitigate the effects of changing agricultural land uses on species dependent upon open grassland areas, two large areas will be designated as grassland habitat management areas. These areas are currently open meadows and will be kept open primarily for their habitat values and rural character under all alternatives by mowing or other means. This acreage will not be available for other management

methods. A Habitat Management Plan will be developed to prescribe appropriate clearing schedules and methods that will maximize habitat value.

Two of the largest and most significant existing grassland habitat blocks have been designated for this purpose including the site of the old Richfield Coliseum (75.5 acres) and a large restored area along the Cuyahoga River between the I-271 and I-80 bridges (35.4 acres). The Coliseum site has recently been restored and now provides high quality habitat for several rare or declining grassland bird species.

Additionally, the Howe Meadow (formerly the Special Events Site) area (25 acres), which is currently mowed, will continue to be mowed regardless of the alternative to be implemented. The use of this area as a recreational site will be maintained.

These three areas (~135 acres) will be kept open through vista management methods (i.e. mowing, habitat management) under all alternatives. This total is about the same as the amount of land currently managed through the vista management method (150 acres). See Table 1.2.

2.4.4. Management Methods Available

The alternatives and related impacts are best described as a direct function of the types of management methods that will be employed under each approach. The various methods available to the NPS for managing the rural landscape are discussed in Section 1.2.4.5. However, some similar management methods will be grouped into categories for ease of discussion in the Alternatives section. All long-term leasing methods (HPLP, NHL, and NLR) will be treated as one category as all long-term leasing has now been legally combined under the NLR. All short-term, non-SUP methods (MOU, CA, concession contracts) will be treated as one category because they do not individually or as a group contribute significantly to rural landscape management and changes in their use is not proposed under any alternative.

All methods may be used to some extent under any of the alternatives. Any new methods proposed specifically for an alternative are described in the relevant section. The primary difference between the alternatives is the emphasis of one or more methods over others for achieving the proposed action.

An estimate of how each method may be used under each alternative is presented in Table 2.1. These estimates were made by reviewing the explicit emphasis of each alternative and then reapportioning available landscape components (unused components and those currently used but available for changes in management) accordingly. Such estimates represent the projected final proportion of management methods applied to land and structural components under each alternative after ten years. Structural uses not expected to change were held constant but included on the table (i.e., 71 structures). Only components currently managed by the NPS were included in the table (i.e., agricultural easements and land exchanges were not counted). For Alternative 1 (No Action), the

Table 2.1. Estimated Proportional Use of Management Methods Under Each Alternative

LANDS										
	Current		Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	<i>Acres</i>	%	<i>Acres</i>	%	<i>Acres</i>	%	<i>Acres</i>	%	<i>Acres</i>	%
SUP	461	62	834	62	67	5	67	5	461	34
VISTA	150	20	269	20	135	10	1165	86	150	11
LONG	93	13	175	13	1109	82	79	6	242	18
SHORT	34	5	67	5	34	3	34	3	34	3
NPF	0	0	0	0	0	0	0	0	458	34
<i>Total</i>	<i>739</i>	<i>100</i>	<i>1345</i>	<i>100</i>	<i>1345</i>	<i>100</i>	<i>1345</i>	<i>100</i>	<i>1345</i>	<i>100</i>

STRUCTURES										
	Current		Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	#	%	#	%	#	%	#	%	#	%
PARK	46	35	87	35	57	23	46	19	46	19
LONG	38	29	72	29	150	61	38	15	38	15
SUP	20	15	38	15	0	0	10	4	10	4
SHORT	15	12	29	12	23	9	15	6	15	6
SCEN	11	8	20	8	16	7	137	56	137	56
<i>Total</i>	<i>130</i>	<i>100</i>	<i>246</i>	<i>100</i>	<i>246</i>	<i>100</i>	<i>246</i>	<i>100</i>	<i>246</i>	<i>100</i>

Key: LONG - Long-term leasing (HPLP, NHL, NLR); NPF - National Park Service sponsored farming; PARK - Park uses; SCEN - Scene-setters; SHORT - Other short-term agreements (MOU, CA, concessions contracts); SUP - Special Use Permits; VISTA - Vista Management (mowing, habitat management). The management emphasis under each alternative is in **bold**. Estimates are based a set of assumptions (below) and are meant to illustrate management emphasis for the alternatives and how they relate to the current landscape. Changes in 10 percent for any management method would not be considered significant. Acreages and structures have been rounded for consistency in presentation across the table.

Assumptions: Lands - Under all alternatives a minimum of 135 acres are maintained under vista management as described in Section 2.4.3. For Alternative 1, it was assumed that the final proportion of management method use would be same as the current breakdown. For Alternative 2, SUPs were reduced to 5 percent, other short-term agreements were kept at approximately current levels, and remaining lands were assigned to long-term leasing. For Alternative 3, SUPs were reduced to 5 percent, long-term and other short-term methods maintained approximately original acreages, with remaining available lands assigned to vista management. For Alternative 4, long-term leases were assigned a 5 percent increase, other methods remained constant, and the remaining land was assigned to NPS farming. **Structures** - For Alternative 1, it was assumed that the final proportion of management method use would be the same as the current breakdown. For Alternative 2, long-term leasing numbers included the original long-term agreements, all remaining SUPs, and all the high potential farmsteads. An additional six farmsteads averaging 5 structures each were added. Scene-setters and other short-term agreements had a 50 percent increase, with remaining structures assigned to park use. For Alternative 3 and 4, park uses, long-term leases, and short-term agreements were unchanged, and 50 percent of the current SUPs and all unused structures were treated as scene-setters.

numbers reflect the actual current breakdown of management methods, which is assumed to remain constant over time. Changes of up to 10 percent in any management method would not represent a major shift in emphasis.

2.4.5. Rehabilitation and Maintenance of Properties

The NPS will be responsible for the rehabilitation of federally-owned properties contributing to the rural landscape under any alternative. This will assure that NPS standards for historic and non-historic properties are maintained. It is expected that the current average rate of rehabilitation (approximately 3-4 properties/year) is common for all alternatives. Properties will be rehabilitated in order of priority for use. Structures on properties pending rehabilitation will undergo interim stabilization measures and associated lands will be maintained to control succession.

After rehabilitation, major property maintenance issues (e.g., full roof or septic replacement) remain the responsibility of the NPS, except as detailed in specific agreements. Day-to-day maintenance (e.g., mowing, unclogging of drains, painting) may become the responsibility of the particular user if other than the NPS.

2.4.6. Resource Reviews

It is acknowledged that the lands identified in the open space inventory (GIS data) require site-level review before final use areas are assigned. It is very likely that the actual amount of land to be assigned to agricultural uses will decrease. Many open field boundaries are approximate and yet-to-be-assigned protective buffer zones may further limit agricultural use.

Natural and cultural resource managers will closely review all lands and structures within the project scope before they are put into active use or undergo any changes in management method. Natural resource reviews will identify concerns including the presence of NPS monitoring sites, wetlands, rivers and streams, rare, threatened, and endangered species, and special habitats. Cultural resource reviews will identify concerns related to archaeology, historic structures, and cultural landscapes.

Final recommendations on the use of each area, required protective buffer zones, and the need for additional environmental compliance as required by NPS and park policy will be used in determining which lands are actually managed as part of the rural landscape over time. Additional site-level environmental and historic preservation compliance activities may be required.

Additionally, the NPS will use landscape ecology and planning principles to help assign specific agricultural uses across the park given the general constraints of available land, structures, and interested farmers under each alternative over time. The type and location of assigned uses will be considered at a park landscape perspective to minimize additive landscape-level impacts on natural resources and efficiently utilize cultural resources.

These 'ecological design' principles will be applied as the program unfolds over the next 10 years.

2.4.7. New Acquisitions and Unforeseen Circumstances

Lands and structures that contribute to the rural landscape may occasionally come into NPS management through acquisition or the expiration of retentions and life estates. Additionally, some of the 27 properties that contribute to the rural landscape and have an existing use that park managers view as unchanging may become available due to unforeseen circumstances (e.g., the breaking of a long-term lease).

If these areas have not been already assessed in this draft EIS, they will be assessed for natural and cultural values through the assessment methods used currently. Then, depending upon which of the alternatives is implemented, these lands and/or structures would be managed for their best use based on the proportions described in Table 2.1. In other words, all new acquisitions will not be automatically managed with the predominant method of the selected alternative. Site-level environmental and cultural resource compliance requirements will be completed for any new rural landscape components. An amendment to this EIS will be completed if the scale of changes deems this appropriate.

2.5. ALTERNATIVE 1 - NO ACTION

In this alternative, the NPS would continue to manage the rural landscape using the variety of methods currently available. Current methods were described in Section 1.2.4.5. No significant change in the emphasis of how these methods are used in the park would be implemented (Table 2.1). Agricultural fields, structures, and associated curtilage lands would continue to be maintained under current park plans and practices.

2.5.1. Major Emphasis

Currently, the park manages most of the rural landscape lands through SUPs (62 percent) and vista management by mowing (20 percent) (Table 2.1). Structures are managed largely through adaptive park uses (35 percent) and long-term leasing (29 percent). The park mows and maintains the curtilage around structures used for adaptive park uses and leaseholders are responsible for maintaining the curtilage lands included in their leases. Major changes in emphasis are not expected under this alternative. The various management methods will continue to be applied to unmanaged areas and structures opportunistically as needs arise. Due to uncertainty about future levels of management methods, changes of up to 10 percent in any use method will not be considered substantial.

Under Alternative 1 (No Action), farming practices that exist under SUP would likely continue. This includes conventional farming, sustainable farming, and equestrian uses as

described in Section 1.2.4.5 and shown in Table 1.1. Existing long-term use agreements would be maintained including the three sustainable farms leased under the NLR.

A large proportion of the field management activities would continue to be accomplished by farmers under short-term leases. Day-to-day maintenance of farm buildings and curtilage lands would continue to be almost equally split among leaseholders and NPS staff.

The addition of a few more sustainable farms, demonstration farms, or historical farms would not be considered substantive changes in the No Action alternative for the purposes of this draft EIS, as they are not likely to affect more than 10 percent of the lands and structures. Site-level environmental compliance activities would be required for any new farm project.

The use of lands and structures would continue as outlined in earlier plans without changes in the management method emphasis. Little new construction is expected.

Little new fencing is expected beyond those installed on working farms and restored to preserve scenic values. Few SUP farmers currently fence fields, and this pattern is expected to continue, as the incentive to invest in capital improvements remains small. Some areas may be closed to general public access. Appropriate signage will notify the public of such closures. For areas without agricultural activities, fencing that does not contribute specifically to aesthetic value is not expected.

Pesticide use in the park is expected to increase if more land is leased, but the proportion of leased lands treated with pesticides and the type of pesticides used is expected to remain relatively constant. Current pesticide uses are detailed in Table 2.2 – *Pesticide Use on NPS Agricultural Lands - 2001*.

2.5.2. *Timeline*

An incremental and opportunistic approach to address unused lands and structures will be implemented over the next ten years, subject to the needs of the park and the interest and availability of SUP and long-term lease farmers. It is not clear whether the full implementation of park goals will be realized under this alternative.

2.5.3. *Cost*

The expected costs and income associated with Alternative 1 during the first ten years, the second 10 years, and each year thereafter are found in Table 2.3. Costs of \$17,597,150, \$11,267,800, and \$887,530 and incomes of \$905,100, \$905,100, and \$90,510, are expected in those time periods, respectively.

The net cost of this alternative over 20 years is \$27,054,750 and will be \$797,020 each year thereafter.

Table 2.2 - Pesticide Use on NPS Agricultural Lands - 2001

*Under NPS guidelines, all pesticide use in the park must be approved through an application and review process. A summary of pesticide uses for 2001 is found in the table below. Six of 19 SUP farmers (32 percent) applied pesticides, which is typical as many common types of farming (e.g., haying, oats, field corn) usually do not require pesticides. Some farmers have been certified organic in the past or have pledged to farm using more sustainable practices. Biological agents such as *Bacillus thuringiensis* (B.t.) and milky spore have also been requested and approved for use in previous years for insect control (i.e., grubs). The park does not usually apply pesticides to areas that it manages as agricultural open space.*

Crop	Pesticide	Amount	Acreage
Christmas trees	Deer Away [®]	160 gallons	5.2 acres
Christmas trees	Malathion	36 ounces	1.5 acres
Christmas trees	Dormant oil (Drexel [®])	8 gallons	2 acres
Hay	2-4 D Amine	4 pints	38
Sweet Corn	Dual II Magnum [®]	122.5 pints	81 acres
Sweet Corn	Larvin [®]	40 ounces	47 acres
Sweet Corn	RoundUp [®]	6 quarts	6 acres

(Active ingredients of pesticides: Deer Away[®] - putrescent egg solids; Dormant oil – paraffinic oil; Dual II Magnum[®] - s-metolachlor; Larvin[®] - Thiodicarb, 1,2 Propylene glycol; RoundUp[®] - glyphosphate, isopropylamine salt).

Table 2.3. Cost/Income Estimates - Alternative 1 (20-Year Model)

<u>Cost/Income Elements</u>	<u>Initial 10-Year Period</u>	<u>Second 10- Year Period</u>	<u>Annual After 20 Years</u>
COSTS			
Structure Rehabilitation			
Full Rehabilitation	\$15,297,500	0	0
Scene Setter Rehabilitation	0	0	0
Management/Monitoring Costs			
Wetland Delineations	\$161,400	0	0
Vista Management (NPS Mowing)	\$215,200	\$215,200	\$20,480
NPS Farming	0	0	0
Archeology Assessment & Monitoring	\$200,000	\$100,000	\$10,000
Property Maintenance			
NPS Used Structures	\$1,108,050	\$4,923,600	\$492,360
Other Used Structures	\$585,000	\$3,516,500	\$351,650
Scene Setters	\$30,000	\$120,000	\$12,000
Lead Paint Removal Follow-up	0	\$2,392,500	0
SUBTOTAL COSTS	\$17,597,150	\$11,267,800	\$887,530
INCOME			
Lease/Permit Revenues			
SUP (Lands) Income	\$125,100	\$125,100	\$12,510
Sustainable Farm Income	0	0	0
Other Long Term Lease Income	\$120,000	\$120,000	\$12,000
Other Short Term Lease Income	<u>\$660,000</u>	<u>\$660,000</u>	<u>\$66,000</u>
SUBTOTAL INCOME	\$905,100	\$905,100	\$90,510
GRAND TOTAL COSTS	\$16,692,050	\$10,362,700	\$797,020
	<i>20-Year Total Costs:</i>	<i>\$27,054,750</i>	

Notes: Costs are assessed for a 20-year period without discounting. This allows for the assessment of maximum potential revenue stream from all sustainable farms (which have a 10-year growth and revenue model - see Appendix F). Full implementation of all alternatives is assumed. Numbers reflect comparative costs/incomes for the 58 available properties and agricultural lands subject to the proposed action. All costs/revenues for the other contributing properties are not included in the totals and are considered constant for all alternatives. It was assumed that 50 percent of available properties (29) require

2.6. ALTERNATIVE 2 - COUNTRYSIDE INITIATIVE (PREFERRED ALTERNATIVE)

In this alternative, the rural landscape would be managed largely by issuing long-term leases to private individuals for the purpose of conducting sustainable agricultural activities. Under the New Leasing Regulations (NLR), lands and structures would be leased together for agricultural use for periods of up to 60 years. Lessees would be required to farm using practices considered to be more sustainable than conventional. Preferred sustainable agriculture practices are discussed in Appendix E. Other management methods would continue to be used, but less frequently (Table 2.1). Specifically, a lower proportion of SUPs, vista management practices, and park utilization of structures is expected.

2.6.1. *Major Emphasis*

The Countryside Initiative would focus on issuing long-term leases under the NLR to manage farmstead structures and associated lands jointly. In addition to the three pilot program farmsteads (Vaughn, Leyser, and Parry), approximately 25-30 farms ranging from less than ten acres to more than 100 acres in size would be restored and put into operation over the next ten years at a rate of approximately three per year. It is expected over that time period that the use of long-term leasing to manage lands would increase to approximately 82 percent (Table 2.1) and structures to approximately 61 percent.

The Countryside Initiative would also focus on expanding the limited lived-in landscape and establishing a 'sense of place'. The Cuyahoga Valley was a place of agriculture for over 200 years. Under this alternative, farmers would reside in the valley on a long-term basis, so their constant presence would create a dynamic, working, agricultural landscape. This Initiative avoids setting up an image of a museum-like snap-shot of a certain period of history; rather, it enhances in a very real way the sense that the valley is *living* landscape. Countryside Initiative farmers would also be expected to have a public component to their farming operation to establish that the visiting community is a welcome part of the living, working community in the valley.

A Request for Proposals open to all interested parties on a competitive basis would be conducted annually according to NPS guidelines. Lease details such as terms, rent, rights and responsibilities would conform to the additional guidelines detailed in Appendix F. Each year, farmers would be required to submit annual farm operating plans for NPS approval. The farm operating plans would include details on the use of lands and structures, including but not limited to: new construction, crop and livestock selection, pesticide and fertilizer use, use of wildlife deterrents (netting, visual, and audible methods), water use, buffering of riparian and wetland areas, farming practices, and marketing and outreach programs. Basically, all activities on these farmsteads will require prior NPS approval. Annual farm operating plans will be required to be respectful of the historical context of farmsteads, but will not be held to strict historic techniques as farming practices have evolved over time. To ensure compliance with NPS standards,

NPS staff will not only review farm plans but the staff will also provide technical assistance to farmers during preliminary planning as well as conduct annual site visits to observe and monitor the condition of farmsteads and fields.

Lands and structures under current management may be converted to management under these long-term leases as described in Section 1.2.4.5. Agricultural open space associated with these farmsteads and not currently managed would be cleared by mowing and/or brushhogging in preparation for farming activities over the next decade. Areas and structures not included as part of these farmsteads would be managed using other methods as outlined in earlier park plans.

Most farms under this alternative would grow and sell the kind of food and fiber crops which were grown and sold in the area from the early 19th century through the mid 20th century. For example, all manners of fruit and vegetable production, as well as herbs and flowers would be expected. Grazing for meat production (e.g., beef, lamb, chevon, chicken, turkey) and for small dairies (e.g., cattle, goat, and sheep) would also be expected. Some free-range poultry operations would probably include egg production. Many farms might integrate crop and livestock systems. There would be few rigid categorical prohibitions or exclusions for specific crop or livestock species. Species known to be particularly invasive would not be permitted. Additionally, enterprises based largely on exotic or newly popular livestock, such as bison, deer, elk, ostriches, emus, rheas, llamas, alpacas, miniatures, and equine boarding would not be permitted. However, it is expected that some integrated use of this type of exotic livestock and small levels of equine boarding may occur.

Farmers under long-term leases would accomplish a large proportion of the field management activities. Day-to-day maintenance of farm buildings and the associated curtilage would become largely the responsibility of those lessees as well.

Pesticide use in the park would be expected to increase as more land is put into active economically-based production, but the types of pesticides used are expected to be largely biological (e.g., *Bacillus thuringiensis*, milky spore, beneficial fungi) rather than chemical. The use of cultural practices (e.g., companion planting, crop rotation, manual removal of pests), biological pesticides and controls (e.g., ladybugs, aphid wasps), and NPS integrated pest management practices would be required over chemical uses as outlined in Appendix E.

Changes to the landscape elements are expected as farmsteads are revitalized through long-term leasing or converted from other types of current management methods. Fencing, outbuildings, farm-related structures, bridges, windmills, water wells and farm ponds could be built on leased farmsteads. Fencing is expected to increase and would conform to the guidelines outlined in Appendix G. It is expected that most if not all farmsteads would install fencing of one or more types. A number of farms and farm fields may be closed to general public access. Appropriate signage will notify the public of such closures. All construction or modifications to structures or the landscape would have to be approved by the NPS and might require individual environmental compliance actions.

Farmers would be expected to use the full range of marketing methods now common in sustainable farming. Some farmers might develop *Pick-Your-Own* operations for blueberries, raspberries, strawberries, apples, pumpkins, and so on. Some might establish *Community Supported Agriculture* programs in which shares of each season's production are sold in advance to a number of local families. *Restaurant Supported Agriculture* arrangements would provide dependable outlets for others. Some farmers might maintain a roadside stand, attend weekly farmers markets, deliver direct to customers, or have customers pick up produce at the farm.

2.6.2. *Timeline*

Approximately three farmsteads would be put back into agriculture annually for 10 years. Increased clearing of fields and mowing would be implemented over the next two years to maintain open space for upcoming lease offerings.

2.6.3. *Cost*

The expected costs and income associated with Alternative 2 during the first ten years, the second 10 years, and each year thereafter are found in Table 2.4. Costs of \$17,380,135, \$10,900,770, and \$850,827 and incomes of \$1,583,550, \$4,369,050, and \$481,025 are expected in those time periods, respectively.

The net cost of this alternative over 20 years is \$22,328,305 and will be \$369,822 each year thereafter.

Table 2.4. Cost/Income Estimates - Alternative 2 (20-Year Model)

<u>Cost/Income Elements</u>	<u>Initial 10-Year Period</u>	<u>Second 10- Year Period</u>	<u>Annual After 20 Years</u>
COSTS			
Structure Rehabilitation			
Full Rehabilitation	\$15,297,500	0	0
Scene Setter Rehabilitation	0	0	0
Management/Monitoring Costs			
Wetland Delineations	\$181,500	0	0
Vista Management (NPS Mowing)	\$108,000	\$108,000	\$10,800
NPS Farming	0	0	0
Archeology Assessment & Monitoring	\$200,000	\$100,000	\$10,000
Property Maintenance			
NPS Used Structures	\$775,635	\$3,446,520	\$344,652
Other Used Structures	\$787,500	\$4,733,750	\$473,375
Scene Setters	\$30,000	\$120,000	\$12,000
Lead Paint Removal Follow-up	0	\$2,392,500	0
SUBTOTAL COSTS	\$17,380,135	\$10,900,770	\$850,827
INCOME			
Lease/Permit Revenues			
SUP (Lands) Income	\$10,050	\$10,050	\$1,005
Sustainable Farm Income	\$1,423,500	\$4,209,000	\$465,000
Other Long Term Lease Income	\$60,000	\$60,000	\$6,000
Other Short Term Lease Income	<u>\$90,000</u>	<u>\$90,000</u>	<u>\$9,000</u>
SUBTOTAL INCOME	\$1,583,550	\$4,369,050	\$481,025
GRAND TOTAL COSTS	\$15,796,585	\$6,531,720	\$369,822
	<i>20-Year Total Costs:</i>	<i>\$22,328,305</i>	

Notes: Costs are assessed for a 20-year period without discounting. This allows for the assessment of maximum potential revenue stream from all sustainable farms (which have a 10-year growth and revenue model - see Appendix F). Full implementation of all alternatives is assumed. Numbers reflect comparative costs/incomes for the 58 available properties and agricultural lands subject to the proposed action. All costs/revenues for the other contributing properties are not included in the totals and are considered constant for all alternatives. It was assumed that 50 percent of available properties (29) require rehabilitation

2.7. ALTERNATIVE 3 - VISTA MANAGEMENT

In this alternative, the NPS would manage the rural landscape primarily for scenic values. The restoration of currently unused farm structures would primarily be as scene-setters, or secondarily as residential, office, or other non-agricultural use. Lands would be used for non-agricultural purposes. Curtilage lands will be mowed by the park to maintain open space but uses may vary in conjunction with the non-agricultural use of farm structures. Fields will be mowed to be maintained as open space or for wildlife habitat needs. The maintenance of agricultural 'open space' and vistas would be emphasized while minimizing and perhaps eliminating active agriculture on federal land.

Other management methods would continue to be used, but less frequently (Table 2.1). The most significant change would be the gradual conversion of agricultural SUPs and other agricultural activity on park property to mowing and non-agricultural use.

2.7.1. Major Emphasis

It is expected that 86 percent of the lands would be managed by vista management under this alternative. Structures would be managed largely as scene-setters (56 percent). Areas and structures already in use and contributing to the rural landscape under non-agricultural uses would remain in that type of management.

Unused open areas would be managed through periodic mowing to maintain their rural character. Mowing would be done by park staff or by contractors. All agricultural SUPs would convert to mowing after they expire. Areas identified as significant for rare, threatened, endangered, or declining plants and animals would be identified and managed to increase habitat value, usually by adjusting mow frequency and timing.

Structures not currently used or restored would be rehabilitated largely as scene-setters and occasional adaptive park uses as needed. Little new construction is expected.

NPS employees and contractors would accomplish a large proportion of the land management activities. Day-to-day maintenance of farm buildings would become largely the responsibility of NPS staff as well.

Little new fencing would be expected beyond those installed on working farms and those restored to preserve scenic values. Fencing may be removed to facilitate easier mowing. In areas without agricultural activities, fencing that would not contribute to aesthetic value would not be required.

Pesticide use in the park would be expected to decrease as land is taken out of agricultural use.

2.7.2. *Timeline*

Increased clearing of fields and mowing would be implemented over the next two years with the conversion of most agricultural SUPs occurring within the next three to five years. Other long-term agreements would be converted to non-agricultural uses, as they become available. Used structures would be converted to non-agricultural uses when applicable. Unused structures would be rehabilitated as scene-setters over the next 10 years.

2.7.3. *Cost*

The expected costs and income associated with Alternative 3 during the first ten years, the second 10 years, and each year thereafter are found in Table 2.5. Costs of \$12,085,225, \$9,063,550, and \$667,105 and incomes of \$280,050, \$280,050, and \$28,005 are expected in those time periods, respectively.

The net cost of this alternative over 20 years is \$20,588,675 and will be \$639,100 each year thereafter.

Table 2.5. Cost/Income Estimates - Alternative 3 (20-Year Model)

<u>Cost/Income Elements</u>	<u>Initial 10-Year Period</u>	<u>Second 10- Year Period</u>	<u>Annual Costs After 20 Years</u>
COSTS			
Structure Rehabilitation			
Full Rehabilitation	0	0	0
Scene Setter Rehabilitation	\$9,839,700	0	0
Management/Monitoring Costs			
Wetland Delineations	\$27,000	0	0
Vista Management (NPS Mowing)	\$932,000	\$932,200	\$93,200
NPS Farming	0	0	0
Archeology Assessment & Monitoring	\$20,000	\$20,000	\$2,000
Property Maintenance			
NPS Used Structures	\$549,000	\$2,461,800	\$246,180
Other Used Structures	\$202,500	\$1,217,250	\$121,725
Scene Setters	\$510,000	\$2,040,000	\$204,000
Lead Paint Removal Follow-up	0	<u>\$2,392,500</u>	<u>0</u>
SUBTOTAL COSTS	\$12,085,225	\$9,063,550	\$667,105
INCOME			
Lease/Permit Revenues			
SUP (Lands) Income	\$10,050	\$10,050	\$1,005
Sustainable Farm Income	0	0	0
Other Long Term Lease Income	\$60,000	\$60,000	\$6,000
Other Short Term Lease Income	<u>\$210,000</u>	<u>\$210,000</u>	<u>\$21,000</u>
SUBTOTAL INCOME	\$280,050	\$280,050	\$28,005
GRAND TOTAL COSTS	\$11,805,175	\$8,783,500	\$639,100
	<i>20-Year Total Costs:</i>	<i>\$20,588,675</i>	

Notes: Costs are assessed for a 20-year period without discounting. This allows for the assessment of maximum potential revenue stream from all sustainable farms (which have a 10-year growth and revenue model - see Appendix F). Full implementation of all alternatives is assumed. Numbers reflect comparative costs/incomes for the 58 available properties and agricultural lands subject to the proposed action. All costs/revenues for the other contributing properties are not included in the totals and are considered constant for all alternatives. It was assumed that 50 percent of available properties (29) require rehabilitation.

2.8. ALTERNATIVE 4 - NPS FARMING

In this alternative, the NPS would manage the rural landscape primarily by hiring employees or contractors to implement a network of farmed areas as directed by the NPS to give the appearance of active farming in the park. Under this option, proposed fields not currently in agricultural use would be put into agricultural use. Unused structures would be rehabilitated largely as scene-setters or some would be used to support NPS farming activities. Curtilage lands around these structures would be mowed and possibly used to support farming. A farming program directed by the NPS could also include a few farms demonstrating various themes such as sustainability and farming practices of specific historical eras. This alternative seeks to preserve not only the open space and vistas associated with agricultural areas, but also the agricultural activities associated with those areas.

Other management methods would continue to be used, but less frequently (Table 2.1). The most significant change would be the gradual conversion of vista management actions (i.e., mowing) to NPS farming. Agricultural SUPs and other agricultural activity on park property would continue whenever such opportunities presented themselves. Basically, the NPS would fill any gaps in agricultural activity on rural lands.

2.8.1. *Major Emphasis*

It is expected that 34 percent of fields would be managed by NPS farming under this alternative with another 34 percent remaining under agricultural SUPs. Structures would be managed largely as scene-setters (56 percent) with the surrounding curtilage being mowed. Areas and structures already in use and contributing to the rural landscape would remain in that type of management.

Unused open areas would be managed by farming (i.e., planting crops, haying) to reestablish or maintain their rural character. Farming would primarily be done by park staff or by off-site contractors, although cooperative agreements and concession contracts could be used occasionally. The emphasis would be on the activities relating to farming - plowing, sowing, and harvesting. Some limited grazing of livestock could occur on a small scale when directly associated with demonstration or historical farms. Little emphasis on crop protection or production would be made (i.e., little new fencing or pesticide use), as crops are not intended for sale. Harvested crops would be discarded or in many cases left unharvested. Agricultural SUPs would continue and possibly expand. Long-term agreements to farm may also expand.

Structures not currently used or restored would be rehabilitated largely as scene-setters and to support NPS farming activities. Occasionally, structures might also be adapted for park uses. Curtilage lands would be primarily mowed and sometimes used to support NPS farming activities or other park uses. Little new construction would be expected.

NPS employees and contractors would accomplish a large proportion of the land management activities. Day-to-day maintenance of farm buildings would become largely the responsibility of NPS staff as well.

Little new fencing would be expected beyond those installed on working farms and those restored to preserve scenic values. Fencing may be removed to facilitate easier NPS farming. Since crops would not be for sale, fencing that would not contribute to aesthetic value would not be required, except for limited use at demonstration or historical farms.

Pesticide use in the park would be expected to decrease since the goal of NPS would not be to protect crop yields.

2.8.2. Timeline

Increased clearing of fields and mowing would be implemented over the next two years with the eventual conversion of most areas (except those kept open for habitat management reasons) to agricultural uses. A few structures would be converted to agricultural uses when applicable. Structures without a current use would be rehabilitated as scene-setters over the next 10 years.

2.8.3. Cost

The expected costs and income associated with Alternative 4 during the first ten years, the second 10 years, and each year thereafter are found in Table 2.6. Costs of \$13,497,775, \$10,392,550, and \$800,005 and incomes of \$339,150, \$339,150, and \$33,915 are expected in those time periods, respectively.

The net cost of this alternative over 20 years is \$23,212,025 and will be \$766,090 each year thereafter.

Table 2.6. Cost/Income Estimates - Alternative 4 (20-Year Model)

<u>Cost/Income Elements</u>	<u>Initial 10-Year Period</u>	<u>Second 10- Year Period</u>	<u>Annual Costs After 20 Years</u>
COSTS			
Structure Rehabilitation			
Full Rehabilitation	0	0	0
Scene Setter Rehabilitation	\$9,839,700	0	0
Management/Monitoring Costs			
Wetland Delineations	\$110,550	0	0
Vista Management (NPS Mowing)	\$120,000	\$120,000	\$12,000
NPS Farming	\$2,061,000	\$2,061,000	\$206,100
Archeology Assessment & Monitoring	\$100,000	\$100,000	\$10,000
Property Maintenance			
NPS Used Structures	\$554,025	\$2,461,800	\$246,180
Other Used Structures	\$202,500	\$1,217,250	\$121,725
Scene Setters	\$510,000	\$2,040,000	\$204,000
Lead Paint Removal Follow-up	0	<u>\$2,392,500</u>	0
SUBTOTAL COSTS	\$13,497,775	\$10,392,550	\$800,005
INCOME			
Lease/Permit Revenues			
SUP (Lands) Income	\$69,150	\$69,150	\$6,915
Sustainable Farm Income	0	0	0
Other Long Term Lease Income	\$60,000	\$60,000	\$6,000
Other Short Term Lease Income	<u>\$210,000</u>	<u>\$210,000</u>	<u>\$21,000</u>
SUBTOTAL INCOME	\$339,150	\$339,150	\$33,915
GRAND TOTAL COSTS	\$13,158,625	\$10,053,400	\$766,090
<i>20-Year Total Costs:</i>		\$23,212,025	

Notes: Costs are assessed for a 20-year period without discounting. This allows for the assessment of maximum potential revenue stream from all sustainable farms (which have a 10-year growth and revenue model - see Appendix F). Full implementation of all alternatives is assumed. Numbers reflect comparative costs/incomes for the 58 available properties and agricultural lands subject to the proposed action. All costs/revenues for the other contributing properties are not included in the totals and are considered constant for all alternatives. It was assumed that 50 percent of available properties (29) require rehabilitation.

2.9. ALTERNATIVES CONSIDERED BUT REJECTED

The following alternatives were raised during scoping but will not be addressed in this draft EIS for the reasons identified.

1. **Allow Succession.** This alternative would allow all potential farmland to revert to a natural state. This alternative would not achieve the park's objectives of maintaining the rural landscape. While this alternative would benefit the natural resources and values of the park, it would be at a large or complete sacrifice to the cultural resources and values and therefore will not be analyzed.
2. **Protect Agriculture Outside Park.** Under this alternative, the NPS would initiate programs to protect farmland outside of federally managed land in the park. Inside the park boundary, the use of easements, acquisitions, or other techniques are options. Beyond park boundaries, advocacy of farmland protection could be initiated but the park has no legislative authority to take further action. None of these alternatives would achieve the park's objectives of maintaining the rural landscape on federal land within CVNP. Promoting farmland protection outside the park may be a worthwhile endeavor on the part of the park, but does not eliminate the need for managing the park-owned cultural resources according to the CVNP mission.
3. **Demonstration Farming.** Under this alternative, the NPS would establish one or several (three to five) farms to demonstrate historical or sustainable agricultural activities. Implementing a few demonstration farms is not a major change in how lands and structures are currently managed park-wide, involving perhaps only 10 percent of the lands and structures in the rural landscape. Demonstration farms could be implemented under Alternatives 1, 2, and 4 but would play a minor role in managing the total rural landscape. This alternative alone would not address the project objectives of managing the entire rural landscape and will therefore not be analyzed separately.
4. **Develop a Few Farms Only.** Under this alternative, the NPS would develop or lease only a few (three to five) active farms on NPS land. Farms might be sustainable, conventional, or historical. As in #3 above, the addition of a few more farms on park land can occur under Alternatives 1, 2 and 4 (indeed, several small farms already exist) and does not constitute a significant change from current practices nor does it address the management of the entire rural landscape. This alternative will not be analyzed separately.
5. **Mandate Organic Farming.** Some members of the public have suggested that the NPS require all agricultural uses to be organic. Organic practices are by definition environmentally friendly and would therefore be ideal for use in a national park setting. However, organic certification is not the only path to or a guarantee of environmental sustainability. Similar approaches to farming (known by names such as biodynamic, biointensive, regenerative, permaculture, nature farming, etc.) also use a number of the concepts and practices commonly called organic. Each such school of thought has its own devotees and defenders – and such farmers often prefer

to practice one of these environmentally-friendly alternative farming systems rather than certified organic production.

Additionally, debates in the farming community on organic standards recently adopted by the USDA (December 2000) continue regarding whether they are excessively strict or unacceptably liberal, and whether the certification and annual costs involved are appropriate. Given these ongoing debates and the realization that organic farming is only one of several approaches that would lead to environmentally benign farming in the park, a strict requirement for organic certification is not considered as an independent alternative. Instead, organic farming is specifically incorporated into Alternative 2 (Countryside Initiative), which strongly encourages organic certification and always requires the use of sustainable farming practices similar to organic methods.

6. **Historical Farming.** In this alternative, the rural landscape would largely be managed by conducting historically accurate agricultural activities across the park. Lessees, contractors, or NPS staff would use farm practices considered to be historically appropriate for each farm based on historic assessments. Though perhaps romantically, nostalgically, or educationally appealing on the surface, as a practical matter this approach is not viable for several reasons. Historical agricultural practices, activities, and crops for farms are often contrary to the long-term resource protection focus of a national park, economically incompatible with modern agriculture, or just impossible to recreate (NPS 1991).

All approaches to the use of historical farming at a large scale have significant economic limitations. 'Living historical farms' are usually created by museums or parks as stand alone operations (or in conjunction with a historical village). Single living history farms were once more common on NPS lands (e.g., in Gettysburg and Chattanooga National Military Parks). There are only a few instances where three or four historical farms have been created together (e.g., Living History Farms in Iowa, ethnic farms at Old World Wisconsin). Such farms are extremely costly to create and operate, and they always require very large support subsidies. NPS implementation of historically accurate farming practices through contracting or hiring staff would be extremely costly. Private farmers using traditional practices would not compete effectively in today's economy due to limitations in the older technologies and practices. For example, historical fencing is not particularly effective for preventing depredation of crops and livestock or is largely undesirable from a safety standpoint (e.g., barbed-wire fences). The economies, traditions, and needs that supported historical farming in the past no longer exist.

Large-scale undesirable impacts on the natural environment from non-sustainable historical farming and grazing practices would also be expected under this alternative. Such practices clearly would result in adverse impacts on soil and water, as well as wildlife and their habitats.

For all of these reasons, this alternative will not be analyzed separately. However, as discussed in #2 and #3 above, a small number of historical farms could be implemented under Alternatives 1, 2 and 4, but this would not be a significant change

from current practices nor does it address the project objective of managing the entire rural landscape. Additionally, modern ecologically friendly practices adapted from historical practices may be used to manage the landscape under Alternatives 1, 2 and 4 to varying degrees.

7. **Habitat Management.** Under this alternative, the NPS would manage and restore open space as plant and wildlife habitat, (e.g., maintain bird/butterfly habitat, prairie restoration) rather than for agriculture use. This approach alone does not address the structural components of the rural landscape. Additionally, in general the NPS does not actively manage habitat for any specific group of plants or animals, except in those cases where species are considered rare, threatened, or declining. It is therefore not entirely appropriate to use this approach as a major emphasis of a rural landscape management program. However, maintaining 'open space' by managing habitat for plants and wildlife is warranted in certain cases.

Indeed, in this draft EIS some habitat management is prescribed under all of the alternatives. Large blocks of grassland habitats will be preserved in part to minimize the impacts of habitat loss on rare and declining grassland birds and other species. This management tool could play even a more significant role in Alternative 3 (Vista Management). The development of a Habitat Management Plan to address the preservation of CVNP shrub habitats is also a required mitigation measure to help mitigate effects on those habitats from the proposed action.

8. **Restoration of Original Farmland.** In this alternative, the NPS would reestablish farming or vista management practices only on lands identified as primary contributors to the agricultural theme in the 1987 CLR. Profound adverse environmental impacts would likely result from implementing this alternative. This alternative would require clearing approximately 600 acres that are currently unrecognizable as agricultural land as they have mostly grown into closed-canopy forest. Removal of forest would have major and long-term adverse impacts on wildlife and their habitats, ecological processes, and scenic values. Impact levels would clearly be much greater than the other alternatives that are being analyzed in this document. As other relatively more open space is still currently available in the park, it is reasonable to use this existing open space to restore the rural landscape rather than significantly impact many areas that have already returned to forest. Additionally, agriculture covered most of the park at one point in time and as such most areas are culturally significant at least secondarily to agriculture, so this substitution is justified from a cultural value standpoint. This alternative will not be analyzed further.
9. **Public Service Farming.** Under this alternative, the NPS would manage the rural landscape by providing farmsteads to disadvantaged individuals as a public service. No one is expressly prohibited from participating in the rural landscape management alternatives whether as a park employee, contractor, or prospective lessee. Federal laws regulate the various contracting, leasing, and hiring mechanisms that CVNP must follow. Setting preferences for who performs farming under any of the alternatives may serve some legitimate public purpose, but NPS has no legislative authority to set such preferences. Additionally, the same guidelines, regulations, and restrictions apply to all persons involved under any of the alternatives, regardless of

race, creed, or economic status. Therefore, the environmental impacts analyzed in this document are largely independent of the types of individuals implementing the alternatives.

10. **Returning Farmsteads to Original Farmers.** Under this alternative, the NPS would manage the rural landscape by allowing original farming families to return to farms now owned by NPS. This alternative will not be analyzed for the same reasons as #9 above.

2.10. HOW ALTERNATIVES MEET STATED OBJECTIVES

Table 2.7. Summary Comparison of Features of Each Alternative

This table contains a concise comparison of the features of each alternative described in Chapter 2, “The Alternatives.”

Feature	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
Land Management Emphasis	62% Special Use Permits 20% Vista Management	82% Long-term leasing	86% Vista Management	34% NPS Farming 34% Special Use Permits
Structure Management Emphasis	35% Park Utilization 29% Long-term leasing	61% Long-term leasing	56% Scene-setters	56% Scene-setters
Class of Agricultural Practices	Mostly modern conventional, some sustainable	Mostly sustainable	Little or None	Mostly modern conventional
Work Burden	Largely farmer lessees, NPS mow crew	Primarily farmer lessees	Primarily NPS mow crew	NPS & contract farmers, farmer lessees
Level of New Construction	Low	Moderate	Low or None	Low or None
Level of New Fencing	Low	High	Low or None	Low or None
Pesticide Use & Types	Increase, mainly chemical, some biological	Increase, mainly biological	Decrease	Decrease
Net Costs	First 10 years: \$16,692,050 Second 10 Years: \$10,362,700 Annually thereafter: \$797,020	First 10 years: \$15,796,585 Second 10 Years: \$6,531,720 Annually thereafter: \$369,822	First 10 years: \$11,805,175 Second 10 Years: \$8,783,500 Annually thereafter: \$639,100	First 10 years: \$13,158,625 Second 10 Years: \$10,053,400 Annually thereafter: \$766,090

Table 2.8. Methods Each Alternative Uses to Ensure Each Objective is Met

In each alternative, methods were included to ensure that they met the three stated objectives to some degree. These objectives are discussed in more detail in both the “Objectives and Constraints” section of the “Purpose of and Need for Action” and in the description of each alternative in Chapter 2, “The Alternatives”.

Objective	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
1. Continue the agricultural tradition – preserve agricultural activity or the appearance thereof	Farming activities will occur on lands; structures and the associated curtilage will be utilized for non-agricultural but compatible uses.	Unified agricultural use of farm structures, associated curtilage and adjacent fields.	Maintain agricultural open space, including farmstead curtilage, through mowing; utilize structures as scene-setters and for park operations.	NPS will farm lands and utilize some structures and associated curtilage areas for farming purposes. Other structures will be used as scene-setters and the curtilage mowed.
2. Preserve scenic values – balance cultural and natural scenic resources	Some agricultural activity on fields; utilization of structures and curtilage for “lived-in” appearance. Minor changes to natural scene.	Significant increase of agricultural activity on fields; structures and curtilage used for related agricultural purposes. Actual “lived-in” landscape. Moderate changes to natural scene.	Preserve open space scene; buildings largely used as scene-setters. Very little farming activity. Minor changes to natural scene.	Appearance of agricultural activity on fields; buildings used as scene-setters or occasionally for farming purposes. Curtilage mowed or occasionally used for farming. Minor changes to natural scene.
3. Use environmentally sound practices – promote responsible stewardship of the land	Requires buffer zones and compliance with integrated pest management guidelines.	Same as Alternative 1 but also emphasizes the implementation of sustainable farming practices and environmentally friendly uses of buffer zones.	Requires buffer zones; significant reduction in farming and related impacts.	Same as Alternative 1.

Table 2.9. Summary Comparison of Impacts of the Alternatives

The following terms are used in this impact summary chart and throughout the environmental impact statement:

- **Negligible:** the impact is localized or at the lower levels of detection
- **Minor:** the impact is localized or slight, but detectable and would not affect overall resources
- **Moderate:** the impact is clearly detectable and could have an appreciable effect on overall resources; has the potential to become major
- **Major:** the impact is highly noticeable and characterized as severe, or if beneficial, has exceptional beneficial effects

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON CULTURAL RESOURCES				
Archeological Resources - Impacts of farming practices	Moderate adverse impacts from conventional tilling and negligible to minor adverse impacts from conventional grazing.	Negligible to minor adverse impacts from sustainable no-till farming and rotational livestock grazing.	Negligible impacts.	Same as Alternative 1.
Archeological Resources - Impacts of new construction & fencing	Negligible impacts from little new structures or fencing.	Moderate adverse impacts from moderate amounts of new structures and a large amount of new fencing.	Same as Alternative 1.	Same as Alternatives 1 & 3.
Archeological Resources - Impacts of utility installation	Minor to moderate adverse impacts from utility installation.	Moderate adverse impacts from utility installation.	Negligible to minor adverse impacts from utility installations.	Same as Alternative 3.
Historic Structures – Impacts on historic character	Moderate beneficial effects for rehabilitated structures managed by long-term leases or park uses without required agricultural use. Minor to moderate adverse impacts on structures not readily used.	Major beneficial effects for structures readily rehabilitated and managed by long-term leases requiring agricultural use.	Moderate beneficial effects for structures used as scene-setters and for park operations.	Moderate beneficial effects for structures used as scene-setters and major beneficial effects for structures used for NPS farming activities.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON CULTURAL RESOURCES (continued)				
Historic Structures – Impacts on long-term preservation potential	Major beneficial effects for structures readily rehabilitated and managed by long-term leases and park uses. Minor to moderate adverse impacts for structures not readily used.	Major beneficial effects for structures readily rehabilitated and managed by long-term leases.	Moderate beneficial effects for structures used as scene-setters and major beneficial effects for structures used for park operations.	Moderate beneficial effects for structures used as scene-setters and major beneficial effects for structures used for NPS farming activities.
Cultural Landscapes – Impacts on historic character, land uses at the farm scale	Major beneficial effects for fields used for agricultural purposes. Major adverse impacts if fields remain unused and succession is allowed to set in. Moderate beneficial effects for curtilage lands used for compatible uses associated with structure use.	Major beneficial effects for all lands used for agricultural purposes in conjunction with structures.	Minor beneficial effects from mowing to maintain open fields or as wildlife habitat. Moderate beneficial effects for curtilage lands mowed around scene-setters or used for structures used for park operations.	Major beneficial effects for fields used for agricultural purposes and moderate beneficial effects for curtilage lands mowed around scene-setters or used for NPS farming activities.
Cultural Landscapes - Impacts on historic character, land uses at the park-wide scale	Major beneficial effects for fields used for agricultural purposes. Minor to moderate adverse impacts if land remains unused and succession is allowed to set in. Moderate beneficial effects for curtilage lands used for compatible uses associated with structure use.	Same as at farm scale.	Same as at farm scale.	Same as at farm scale.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON CULTURAL RESOURCES (continued)				
Cultural Landscapes – Impacts on historic character, use of existing structures	Moderate beneficial effects for structures used with no required agricultural purpose. Minor to moderate adverse impacts for unused structures.	Major beneficial effects for structures used for agricultural purposes in conjunction with lands.	Moderate beneficial effects for structures used as scene-setters and for park operations.	Moderate beneficial effects for structures used as scene-setters and for NPS farming activities.
Cultural Landscapes – Impacts on historic character, new construction & fencing	Negligible impacts from little new structures or fencing.	Negligible impacts from moderate amounts of new structures. Moderate beneficial effect from large amounts of new fencing.	Same as Alternative 1.	Same as Alternatives 1 & 3.
IMPACTS ON VEGETATION				
Introduction or spread of non-native invasive plants	Moderate adverse impacts from conventional farming practices.	Minor to moderate adverse impacts from sustainable farming practices (no till, rotational grazing, etc.)	Negligible impacts.	Minor to moderate adverse impacts from conventional and NPS-farming use.
Impacts on vegetation in areas adjacent to managed fields	Moderate adverse impacts from conventional fertilizers, pesticides, and livestock manure flowing into surrounding soil. Negligible impacts when fields are mowed or hayed.	Negligible to minor adverse impacts from sustainable agricultural practices.	Negligible impacts.	Minor to moderate adverse impacts from conventional fertilizers, pesticides, and livestock manure flowing into surrounding soil. Negligible impacts when fields are hayed.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON VEGETATION (continued)				
Indirect impacts on forests from deer	Negligible impacts.	Moderate adverse indirect impacts from increased deer browsing in forests are expected on forest groundcover species diversity, forest regeneration and vertical structure. Local extirpation of some sensitive understory species and a failure of tree regeneration in bottomland forests are possible major adverse impacts.	Negligible impacts.	Negligible impacts.
Impacts on threatened and endangered plant species	No impacts are expected.	No impacts are expected.	No impacts are expected.	No impacts are expected.
Impacts on vegetation from animal movements	Negligible impacts.	Minor adverse impacts on pathways between fields especially during wet periods. Negligible impacts within actual proposed fields.	Negligible impacts.	Negligible impacts.
IMPACTS ON WILDLIFE				
Impacts on white-tailed deer	Minor beneficial effects from increased effects of habitat fragmentation and high quality forage. Minor adverse impacts from harassment or mortality from human-wildlife conflicts.	Moderate to major adverse impacts from a reduction in the amount of prime habitat, increased human-wildlife conflicts and traffic mortality.	Negligible to minor impacts from some loss of agricultural forage. Minor to moderate benefits from decreased conflicts with humans.	Minor to moderate benefits from increased effects of habitat fragmentation and high quality forage. Minor adverse impacts from increased traffic mortality.
Impacts on coyotes	Negligible to minor beneficial effects from a slight increase in hunting areas.	Same impacts as white-tailed deer.	Moderate to major beneficial effects from an increase in hunting areas.	Negligible to minor adverse impacts from a decrease in hunting areas.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON WILDLIFE (continued)				
Impacts on beaver	Minor adverse impacts from trapping, killing, relocation or damage to beaver structures in response to human-wildlife conflicts.	Same as Alternative 1.	Beaver would gain minor to moderate benefits from decreased conflicts with humans.	Negligible impacts.
Impacts on other nuisance wildlife species (e.g., geese, woodchucks, and raccoons)	Minor adverse impacts from harassment or killing of animals in response to human-wildlife conflicts.	Same as Alternative 1.	Negligible impacts.	Negligible impacts.
Impacts on early successional and grassland species	Negligible to minor beneficial effects from the mowing of old field areas and SUP use of lands for hayfields that may increase habitat availability.	Moderate adverse impacts from significant habitat loss in sustainable agriculture areas.	Moderate to major beneficial effects due to the increased amount of habitat available from mowing fields.	Negligible to minor adverse impacts from net loss of habitat.
Impacts on state-listed, rare or declining animal species	State-listed bird species associated with early successional habitats have the same impacts as for grassland species in general.	State-listed bird species associated with early successional and grassland habitats have the same impacts as for grassland species in general. Cumulative impacts from regional habitat losses could exacerbate these effects. Cumulative impacts on forests by deer could affect sensitive forest bird species contributing to possible major adverse impacts and local extirpations.	Same as Alternative 1.	State-listed bird species associated with early successional habitats have the same impacts as for grassland species in general. Cumulative impacts on forests by deer could affect sensitive forest bird species contributing to minor adverse impacts.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON WILDLIFE (continued)				
Impacts on federally-listed threatened and endangered animal species	No impacts are expected.	No impacts are expected.	No impacts are expected.	No impacts are expected.
IMPACTS ON WATER RESOURCES				
Impacts from future development	Negligible to minor adverse impacts from little new construction, few new long-term leases for active farming and requirements to conform to protective buffer plans.	Same as Alternative 1 except impacts may occur more frequently because long-term leasing of farms may require the use of buffers. Negligible to major impacts for individual wetlands. Negligible impacts on entire park watershed and system of wetlands.	Negligible impacts.	Same as Alternative 1.
IMPACTS ON SOCIAL ENVIRONMENT				
Human Health & Safety - Impacts from fencing and guardian animals	Negligible impacts.	Minor to moderate adverse impacts from increased use of electric fencing and guardian animals.	Negligible impacts.	Negligible impacts.
Human Health & Safety – Impacts from deer-vehicle accidents	No impacts are expected.	Minor adverse impacts as loss of habitat and increased fencing affect deer distribution and movement.	No impacts are expected.	Minor adverse impacts from an increase in deer populations.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON SOCIAL ENVIRONMENT (continued)				
Impacts on humans from nuisance wildlife	Negligible to minor adverse impacts on farmers as a result of increased crop or tree damage and flooding.	Minor to moderate adverse impacts from increased conflicts between residents/farmers and wildlife.	Negligible impacts.	Negligible impacts.
Visitor Use and Experience – Impacts on scenic values	Negligible impacts from a lack of qualitative change in farming appearances in the park.	Moderate beneficial effects for visitors who prefer the historic, rural setting of the park due to increased agricultural activity on working farms. Moderate adverse impacts for visitors who prefer a more natural landscape.	Moderate adverse impacts for visitors who prefer to view agricultural activity, as there will be a significant reduction in farming. Moderate beneficial effects for visitors who prefer a more natural landscape.	Minor beneficial effects for visitors who prefer to view agricultural activity from an increase in farming. Minor adverse impacts for visitors who prefer a more natural landscape.
Visitor Use and Experience – Impacts on recreational activities	Minor beneficial effects from increased wildlife viewing and bird-watching opportunities.	Minor adverse impacts from limited access to park areas as a result of fencing. Moderate beneficial effects from an increase in farm-related activities and programs. Moderate adverse impacts from decreased wildlife viewing and bird-watching opportunities from exclusionary agricultural areas and a reduction in grassland habitats. Cumulative effects of regional habitat losses could exacerbate these impacts.	Moderate beneficial effects from increased wildlife viewing opportunities in mowed areas.	Minor benefits from farm-related educational programs. Minor to moderate beneficial effects from increased wildlife viewing opportunities.

Topic	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: COUNTRYSIDE INITIATIVE	ALTERNATIVE 3: VISTA MANAGEMENT	ALTERNATIVE 4: NPS FARMING
IMPACTS ON SOCIAL ENVIRONMENT (continued)				
Local Communities – Impacts on school districts	Negligible impacts. Cumulative community growth could lead to possible adverse impacts on school districts expected depending on district response.	Negligible impacts for all school districts except Woodridge where minor to moderate impacts are expected from additional school children residing in park properties. Cumulative community growth could affect the level of impact expected depending on district response.	Negligible to minor beneficial effects from a reduction of children residing on NPS properties attending local schools.	Same as Alternative 3.
Local Communities – Impacts on local revenue from local income taxes	Negligible to minor beneficial effects from vacant properties being put back into use.	Minor to moderate beneficial effects from additional revenues from economically sustainable farm businesses and uses of vacant properties.	Negligible to minor adverse impacts, as currently occupied buildings are taken out of active uses.	Same as Alternative 3.
Local Communities – Impacts on local farmers and businesses	Minor beneficial effects from the availability of additional lands for farming. Negligible impacts from a few additional park farmers.	Negligible to minor adverse impacts on local farmers that depend on NPS land to operate. Minor adverse impacts on local farmers from competition. Minor beneficial effects from increased visitation and business for farming operations in the park.	Minor to moderate adverse impacts on local farmers that depend on NPS land to operate. Negligible impacts on other local businesses.	Negligible impacts on local farmers that depend on NPS land for business. Negligible to minor beneficial effects to other local farmers from increased visibility of farming activity in the park. Negligible impacts on other local businesses.

2.11. ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality (CEQ) regulations (40 CFR 1505.2) require the identification of the *environmentally preferred alternative* in NEPA documents. The environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. This includes alternatives that:

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (CEQ "*40 Questions*"; Federal Register 46:18026). When weighing all these parameters together, Alternative 3 is considered to be the environmentally preferred alternative. It should be noted that when identifying the environmentally preferred alternative, economic, recreational and technical issues are not considered.

Under Alternatives 1 and 4, the adverse impacts associated with conventional agricultural uses will largely be compensated for by the maintenance of open, mostly unfenced agricultural lands and hayfields that still provide many benefits to wildlife that depend on them. Overall, only relatively minor adverse impacts are expected on the biological and physical environment from these Alternatives. Alternative 1 would only minimally protect historic and cultural resources, while Alternative 4 provides a higher level of protection and enhancement of those resources from a larger increase in farming in the park.

In contrast, Alternative 2 has the potential to have overall moderate adverse effects on biological and physical resources. This is primarily due to the fact that farming under this alternative is economically-driven and requires farmers to largely exclude wildlife from areas they now use through fencing, guardian animals, and other deterrents. The conversion of high-quality forage areas (i.e., crops such as corn) and habitats (i.e., hayfields) to other, better protected crops will effectively result in a net loss of forage areas and habitat. Additionally, new construction is expected to be highest under this alternative which may have additional adverse effects on the biological and physical environment.

While having the greatest impacts on the biological and physical environment, Alternative 2 is also the only alternative that provides major benefits to the historic and cultural environment through a significant increase in agricultural activity by resident farmers. The establishment of a living and working rural landscape that only this alternative provides has the highest possible value to the park's cultural and historical environment and is the primary reason this alternative is the park's Preferred Alternative.

Under Alternative 3, active agricultural activity is largely eliminated from the park and replaced with relatively innocuous mowing regimes to keep areas open. This alternative actually provides minor to moderate overall benefits to many wildlife species that depend on these habitats. It is the only alternative that actually provides net benefits to natural resources from the removals of many potential environmental stressors and potential new construction actions directly related to agricultural activity. This alternative also provides moderate benefits to the historic and cultural environment, though not nearly as much as Alternatives 2 and 4.

Alternative 3 is therefore considered to be the environmentally preferred alternative in this draft EIS as defined by the CEQ because it causes the least amount of impact on biological and physical resources, and provides at least moderate benefits to the natural, cultural and historical environment of the park.

2.12. DECISION-MAKING FACTORS

As required by NEPA, the selection of an alternative will be based solely on the information gathered and analyzed in this EIS. In full consideration of NPS and park mandates outlined in this document, the benefits and negative impacts on all park resources are compared along with the expected economic costs of each alternative.

However, inherent in this decision-making process are trade-offs between natural and cultural resources. In many cases, actions that provide the most benefit to cultural resources also have the greatest negative effects on natural resources, and the opposite is often true as well. These trade-offs help explain why the park's Preferred Alternative (which provides the greatest benefit to cultural resources but also negatively affects natural resources) is not the Environmentally Preferred Alternative (which provides minor or moderate benefits to both natural and cultural resources).

2.13. IMPAIRMENT

The action alternatives in this draft EIS were developed to prevent the impairment of park resources and values. During the impact analyses, many actions were taken to reduce the level and types of potential impact or impairment. Special policies and protocols were developed, setbacks to wetlands and riparian zones were prescribed, habitat protection and management actions were adopted, and modifications to the alternatives and scope of proposed agricultural lands and structures were made. Any remaining significant adverse impacts are largely unavoidable, have been minimized when possible, and have been reasonably mitigated. A discussion of the major impact concerns identified in the document and a clarification of why these impacts do not necessarily constitute impairment follows.

Some significant but largely unavoidable natural resource impacts from the proposed action are direct consequences of the conversion of open habitats (i.e., grasslands and shrub areas) to agricultural use. Approximately 1,083 acres of “open fields” (including 740 acres of currently farmed or mowed areas) and 262 acres of “older fields” (those possessing significant shrub/sapling growth) will be cleared of their successional plants and thereafter will be managed to prevent succession, either by mowing or farming. To specifically reduce and mitigate these impacts, two large grassland habitat management areas were designated to preserve the largest and highest quality habitat for rare and declining bird species and other species dependent on that habitat. Similarly, some of the largest existing areas of shrub habitat were preserved and not targeted for agricultural use to minimize impacts on species dependent on those areas. To further mitigate the losses of these habitats, a Habitat Management Plan will be drafted within 5 years to address the long-term maintenance of these open habitats. Impacts on these natural resources are minimized and largely mitigated and are therefore not expected to constitute an impairment of park resources.

By maintaining open space in a largely forested landscape, an additional unavoidable adverse impact of all alternatives is the amplification and maintenance of current forest fragmentation levels and related edge effects. The effects of this action alone would not likely lead to an impairment, but the cumulative effects of continued regional losses and increased fragmentation of forested areas outside of the park could possibly lead to the eventual local extirpation of some sensitive forest interior species. This would constitute a major adverse impact, but is not likely to lead to impairment due to the small number of species involved and the indirect and unavoidable nature of the impact.

A possible indirect consequence of implementing the alternatives is the exacerbation of current deer-related impacts on bottomland forest regeneration processes and sensitive understory species. White-tailed deer populations are at unusually high levels partly due to the availability of alternative forage in agricultural and open habitats. Under Alternatives 1, 3, and 4, small deer population increases are anticipated but are not expected to contribute significantly to these impacts. However, under Alternative 2, deer may be forced to browse more heavily in natural areas when excluded by effective fencing from higher quality forage. While the effects of this action alone would not likely

cause an impairment of park resources or values, they could contribute to impairment if not properly mitigated and bottomland forests are lost as a result of deer foraging more heavily in these areas. Specific mitigation of this potential indirect impact is largely beyond the scope of this draft EIS as the adverse effects of this action are but a small component of a complex regional issue with many contributing factors. However, the park has already initiated early planning steps for a full environmental analysis under NEPA to assess possible management alternatives for reducing deer-related impacts and preventing impairment of park resources and values.

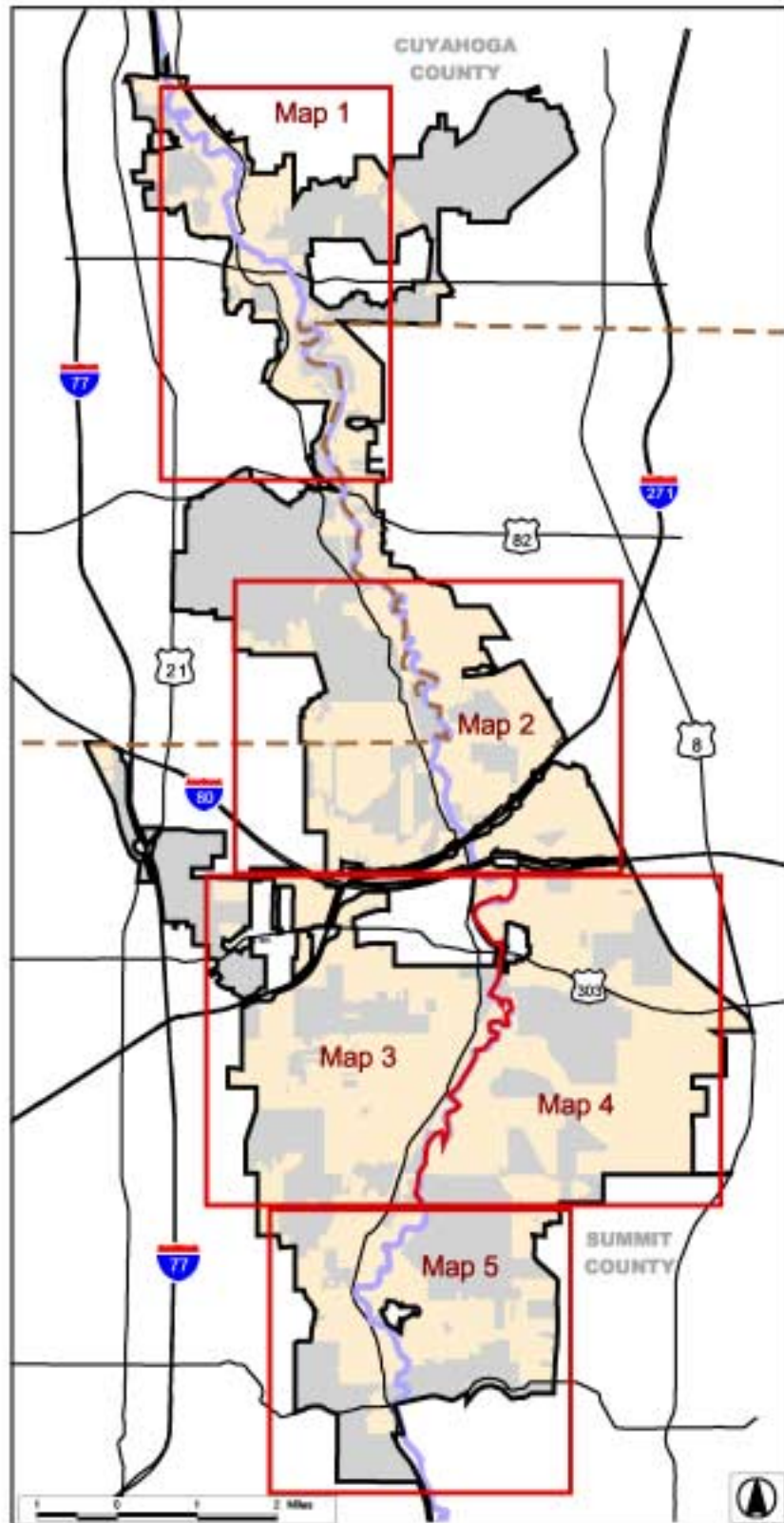
Federal regulations and the specific policies and protocols outlined in this draft EIS will allow the NPS to minimize the risks of impairment and prohibit or suspend any activity that may lead to an impairment of park resources and values.

REFERENCE MAP

Rural Landscape Components

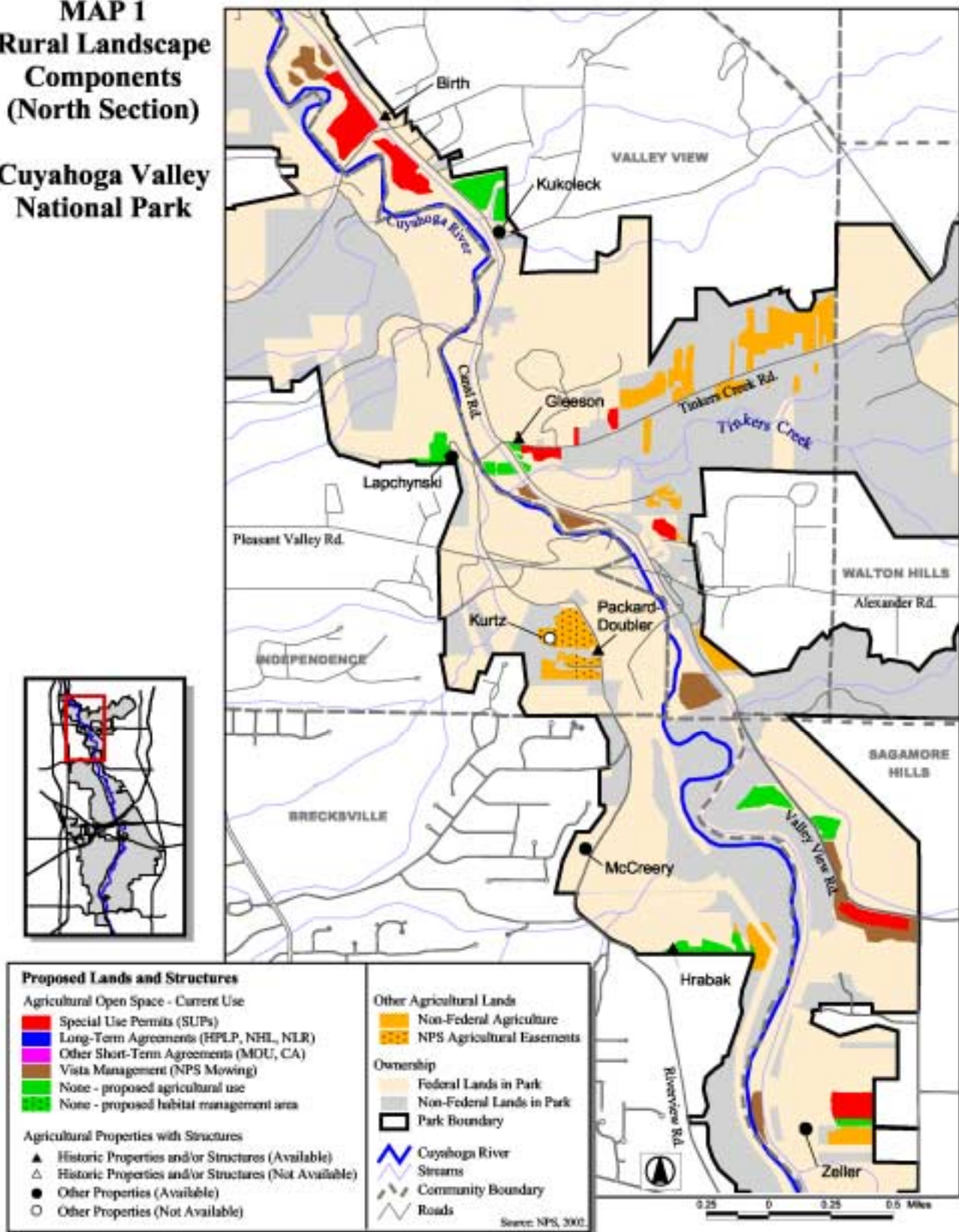
Cuyahoga Valley National Park

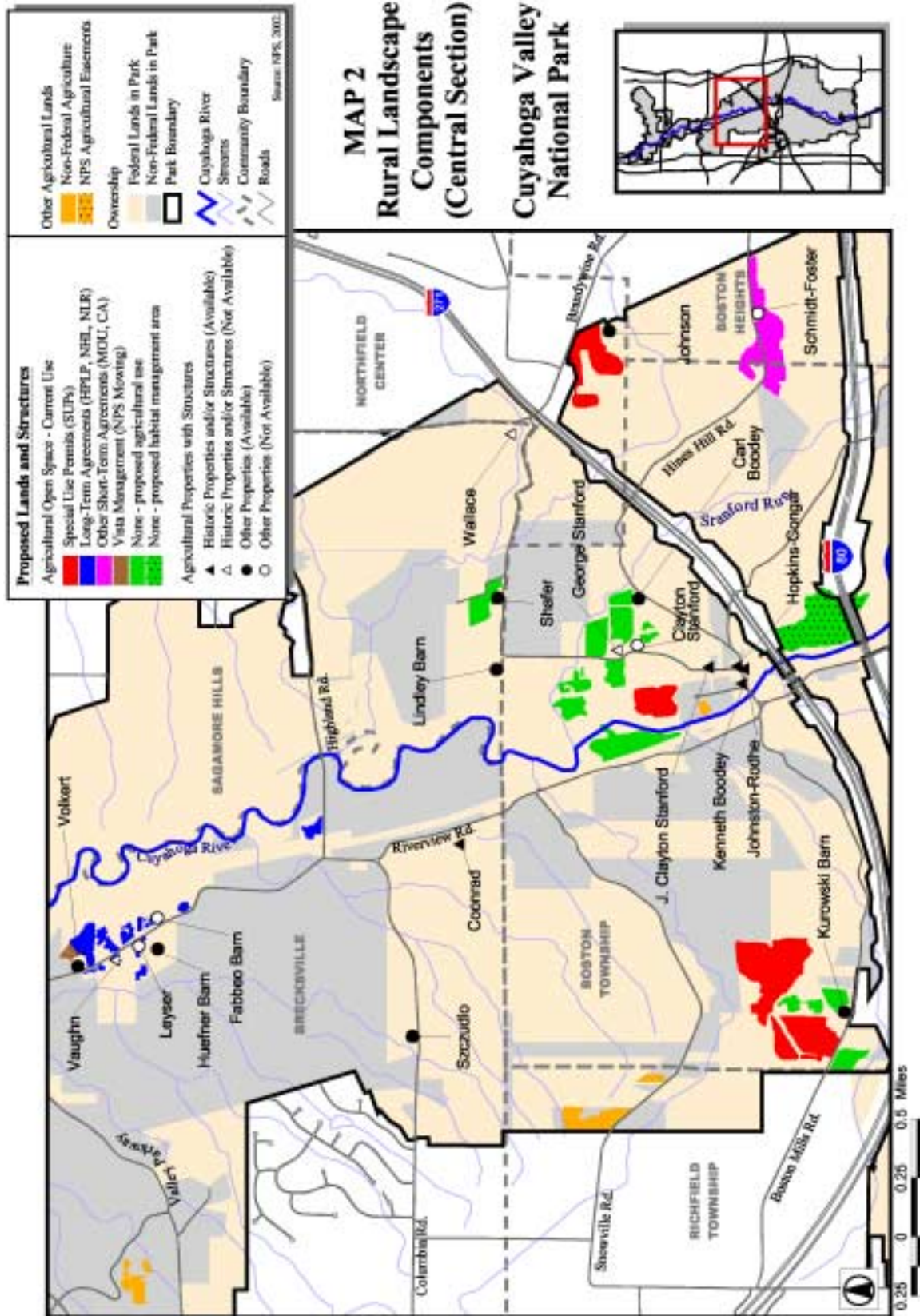
Map 1 - North Section
Map 2 - Central Section
Map 3 - Southwest Section
Map 4 - Southeast Section
Map 5 - South Section

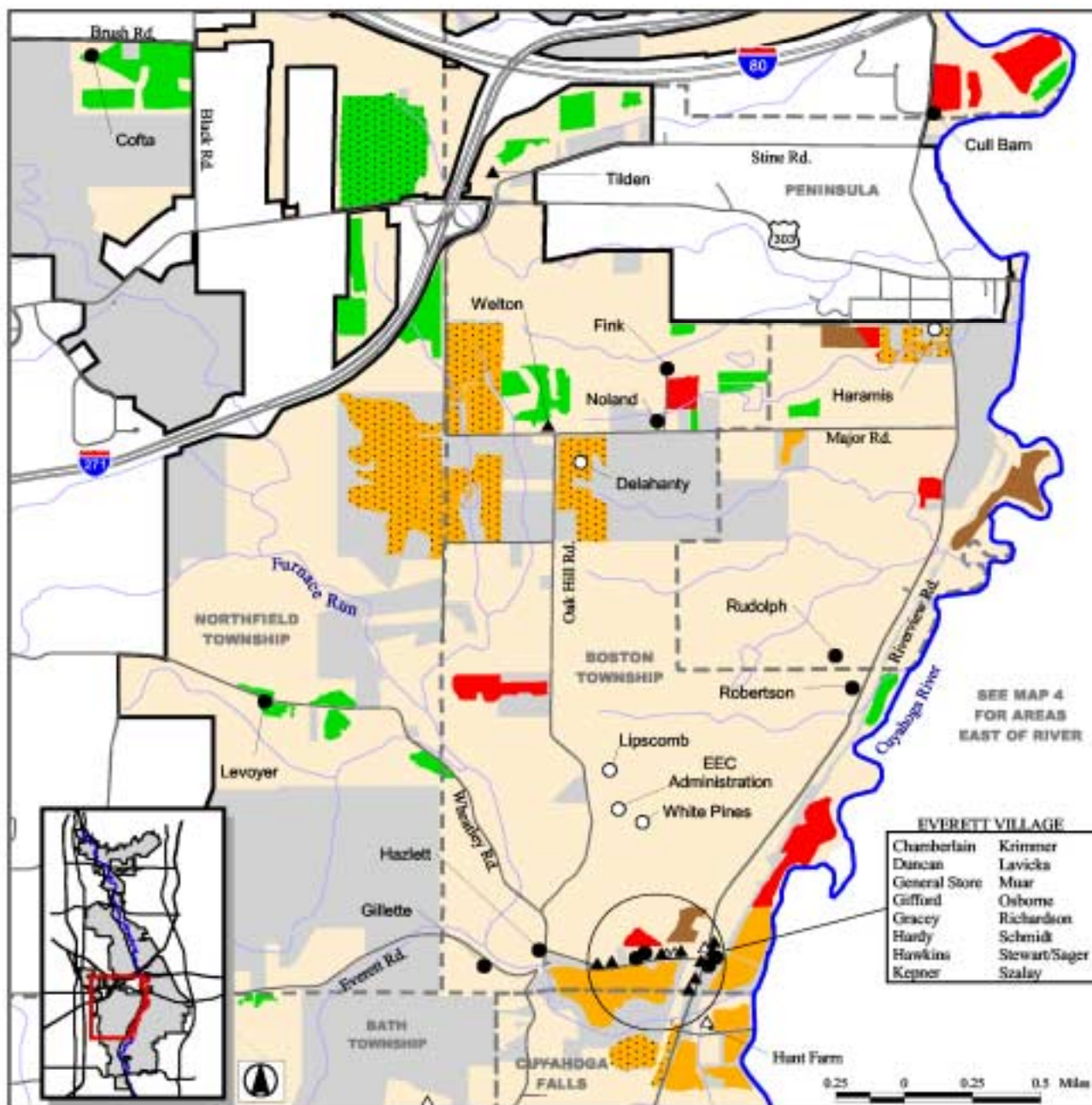


MAP 1 **Rural Landscape** **Components** **(North Section)**

Cuyahoga Valley National Park







MAP 3
Rural Landscape
Components
(Southwest Section)

Cuyahoga Valley
National Park

Proposed Lands and Structures

Agricultural Open Space - Current Use

- Special Use Permits (SUPs)
- Long-Term Agreements (HPLP, NHL, NLR)
- Other Short-Term Agreements (MOU, CA)
- Vista Management (NPS Mowing)
- None - proposed agricultural use
- None - proposed habitat management area

Agricultural Properties with Structures

- ▲ Historic Properties and/or Structures (Available)
- △ Historic Properties and/or Structures (Not Available)
- Other Properties (Available)
- Other Properties (Not Available)

Other Agricultural Lands

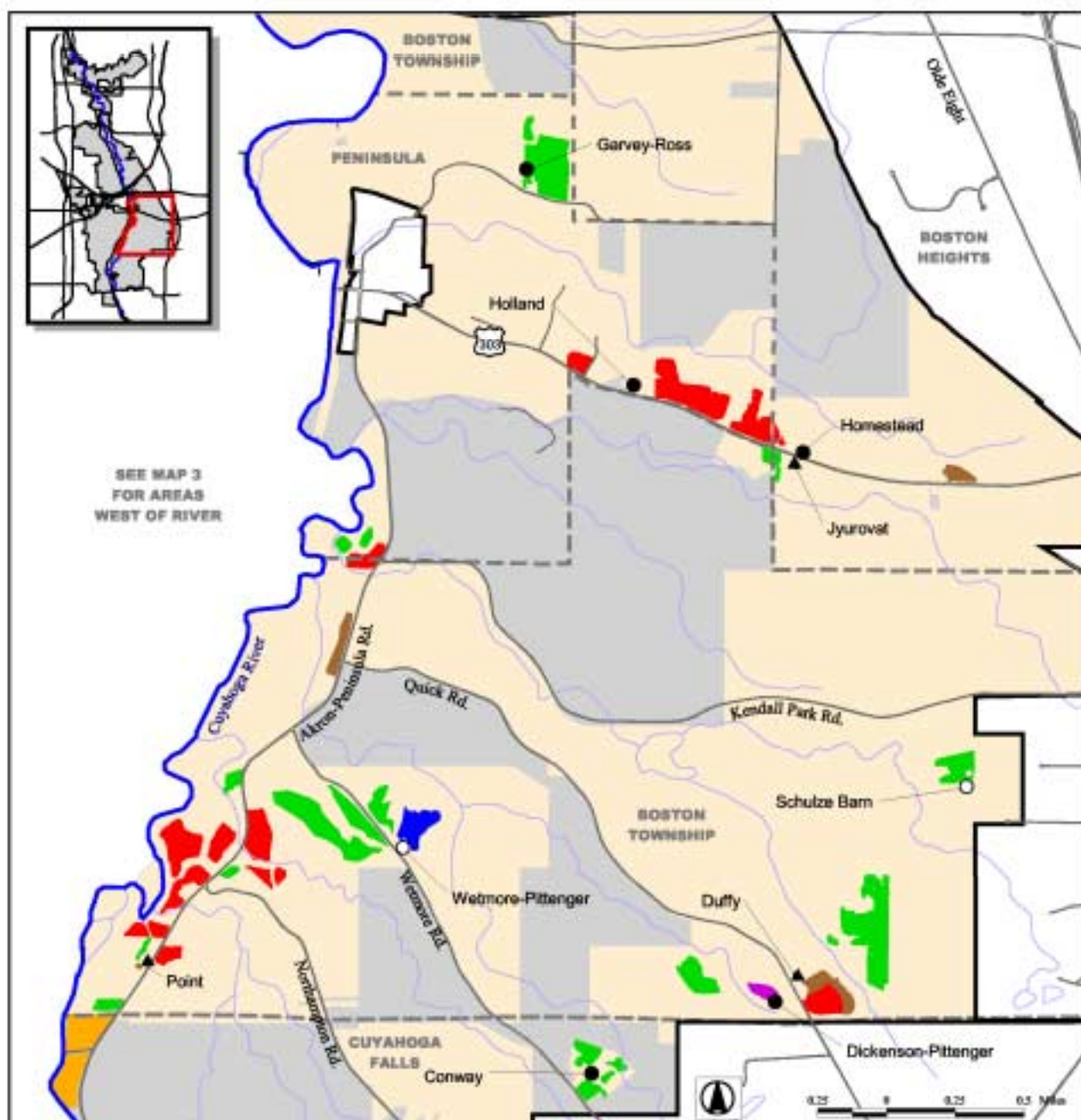
- Non-Federal Agriculture
- NPS Agricultural Easements

Owship

- Federal Lands in Park
- Non-Federal Lands in Park
- Park Boundary

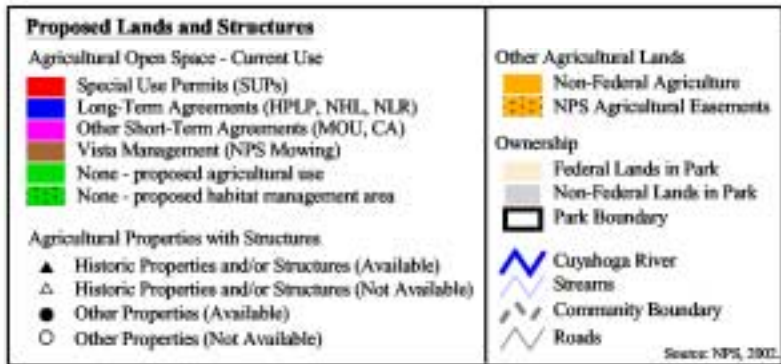
- Cuyahoga River
- Streams
- Community Boundary
- Roads

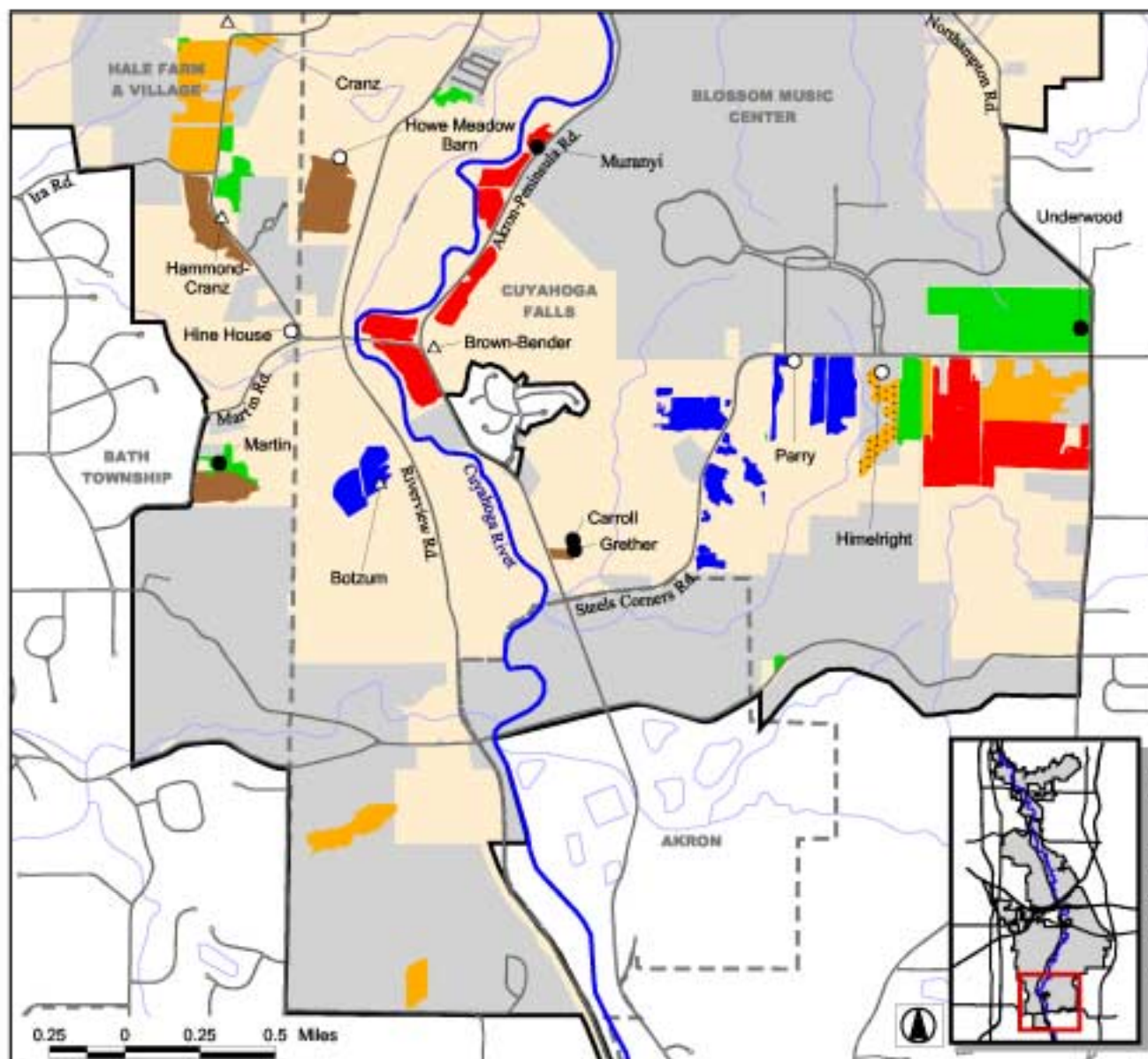
Source: NPS, 2002



MAP 4
Rural Landscape
Components
(Southeast Section)

Cuyahoga Valley
National Park





MAP 5
Rural Landscape
Components
(South Section)

Cuyahoga Valley
National Park

Proposed Lands and Structures

Agricultural Open Space - Current Use

- Special Use Permits (SUPs)
- Long-Term Agreements (HPLP, NHL, NLR)
- Other Short-Term Agreements (MOU, CA)
- Vista Management (NPS Mowing)
- None - proposed agricultural use
- None - proposed habitat management area

Agricultural Properties with Structures

- ▲ Historic Properties and/or Structures (Available)
- △ Historic Properties and/or Structures (Not Available)
- Other Properties (Available)
- Other Properties (Not Available)

Other Agricultural Lands

- Non-Federal Agriculture
- NPS Agricultural Easements

Ownership

- Federal Lands in Park
- Non-Federal Lands in Park
- Park Boundary

- Cuyahoga River
- Streams
- Community Boundary
- Roads

Source: NPS, 2001

3. AFFECTED ENVIRONMENT

3.1. CULTURAL RESOURCES

3.1.1. History

As stated in the *NPS Cultural Resource Management Guideline* (NPS 1997a), cultural resources are “the material evidence of past human activities. Finite and nonrenewable, these tangible resources begin to deteriorate almost from the moment of their creation. Once gone, they cannot be recovered.” Thus, it is imperative that “park management activities reflect awareness of the irreplaceable nature of these material resources”. If these resources “are degraded or lost, so is the parks’ reason for being”. Cultural resources include archeological resources, structures, buildings, cultural landscapes, museum objects, and ethnographic resources. CVNP has focused its research and planning efforts on the stewardship of the first five types of cultural resources to date. In 2004, the regional office plans to begin the park’s Ethnographic Study – Overview and Assessment.

Cultural resources at CVNP have been categorized into six primary cultural themes: prehistoric and indigenous cultures, agriculture, transportation, settlement, recreation, and industry (NPS 1987a). These cultural themes identify a resource by its primary historical significance. However, resources often exhibit overlapping cultural themes as their uses and associations have changed through time. Thus, the cultural resources of CVNP exhibit layers of cultural history that are interwoven.

In this draft EIS, the cultural resources likely to be impacted are those archeological resources, historic structures, and cultural landscapes primarily associated with the theme of agriculture. Impacts on museum objects will not be analyzed in this EIS as they do not fall within the scope of the proposed projects and no impacts are expected. Furthermore, impacts to ethnographic resources will not be analyzed, as these resources have not yet been studied to provide any baseline data about impacts.

As stated in the National Register Nomination for the Agricultural Properties Multiple Properties Document, the 19th century was regarded as the golden age of agriculture in the Cuyahoga Valley (NPS 1992a). The significant period for farming extends from 1797-1930. This time period is significant since it incorporates the beginnings of permanent agricultural settlements and the decline of agriculture due to the closing of the Ohio & Erie Canal.

Over time farming practices changed according to market forces, which were greatly influenced by technological developments, demographic changes, and transportation improvements. As dynamic, built environments, farms often responded by changing existing barns and outbuildings, by altering field sizes and arrangements, by adding new

structures, or by changing their production emphasis. Thus, the rural landscape continued to change and evolve through time and remaining farmsteads, structures, and fields typically represent more than one phase of agricultural development.

Appendix A lists the structural components of the contemporary rural landscape. The maps at the end of Chapter 2 highlight the locations of all pertinent properties. CVNP has hundreds of structures and buildings listed on the List of Classified Structures and 67 listings in the National Register of Historic Places. National Register listings include multiple property listings, historic districts, historic properties, historic structures, and archeological sites. CVNP has historic districts with farming significance as well as individual farm properties that are listed in the National Register of Historic Places. The most comprehensive criteria for nominating farm properties to the National Register exists in the *National Register Multiple Properties Document for the Agricultural Resources of the Cuyahoga Valley* (NPS 1992a).

One National Historic Landmark designation also exists in the park. It is the three mile stretch from Lock 37 to Lock 39 along the Ohio & Erie.

In addition, the park sits within the boundaries of the Ohio & Erie Canal National Heritage Corridor and the Canal Way Ohio National Scenic Byway runs through the park.

Cultural resource compliance for this project as required under Section 106 of the National Historic Preservation Act, as amended, has been initiated.

3.1.2. Archeology

Archeological resources are distributed throughout CVNP. More than half (51 percent) of the park has been archeologically surveyed. A total of 289 archeological sites have been recorded including prehistoric and historic sites. Five archeological sites are listed in the National Register of Historic Places. Several of the properties and lands associated with the rural landscape have been inventoried. Archeological surveys around farm structures have uncovered prehistoric and historic materials and features such as fire-cracked rock, debitage, diagnostic tools, ceramic sherds, pits, and foundations. Farm field survey work has revealed prehistoric materials and features such as stone debris and diagnostic tools. Temporal affiliations represented by these sites include Early, Middle, and Late Archaic, Late Woodland, and Late Prehistoric Traditions, as well as 19th and early 20th century historic time periods. In addition, prehistoric and historic deposits often overlap and may occur on the grounds of the same farmstead.

In general, most archeological survey work at CVNP occurs in conjunction with projects that require ground disturbance. The planning process in relation to these projects typically provides for archeological inventory work to be completed prior to the actual ground disturbing activity. This inventory work is the initial step taken to provide data about the location of resources and the level of significance. In turn, potential impacts on archeological resources are reduced through measures such as site avoidance, project

redesign, or other site protection measures. Currently, the only long-term archeological monitoring occurs in relation to actively cultivated farm fields where the fields are inventoried annually to compare and record findings over time.

3.1.3. *Historic Structures*

In the *NPS Cultural Resource Management Guidelines* (NPS 1997a), a historic structure is defined as “a constructed work...consciously created to serve some human activity”. It also notes that “regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity. The preservation of historic structures involves two basic concerns: slowing the rate at which historic material is lost, and maintaining historic character.” Buildings, monuments, dams, canals, bridges, roads, fences, mounds, structural ruins, and outdoor sculpture are all examples of historic structures.

In this draft EIS, the historic structures primarily impacted are buildings and outbuildings associated with the rural landscape of CVNP. There are few remaining fences; therefore, impacts on fence resources are expected to be negligible. New fencing is specifically discussed as part of the cultural landscape. Impacts on other structural resources in CVNP are expected to be negligible under this project scope and will not be analyzed.

In the park, dominant farmhouse types and styles are associated with specific periods of agricultural development that are generally representative of modest 19th and early 20th century Midwestern rural residential architecture. Styles include Greek Revival, Italianate, Queen Anne, Gothic Revival and Craftsman/Bungalow. These building types reflect the influence of the New England/New York area as well as vernacular architecture that is a reflection of the traditions of distinct cultural groups, available materials, and climate. Many houses actually represent a mix of architectural styles.

Barn types are a direct reflection of the agricultural practices that occurred in the Valley during specific periods. Three dominant barn types exist: the English 3-Bay Barn, the Raised Bank Barn, and to lesser extent, the Gambrel Roof Barn. Outbuildings such as sheds, privies, smokehouses, springhouses, carriage houses, horse barns, and summer kitchens are common to 19th century farmsteads and pertain more to the lifestyles of farmers and their families than to a particular phase of agricultural development. Other outbuildings including granaries, corn cribs, chicken coops, and bullpens have a more direct association with the rural practices. Greenhouses and fruit stands are outbuildings that are directly related to the economic diversification of farmers in the early 20th century when the decline in traditional agriculture began. In general, outbuilding construction methods and materials reflect their utilitarian purpose and the availability of inexpensive materials.

CVNP treats all structures as cultural resources and therefore universally applies National Register standards for historic preservation. The rural landscape includes 30 properties that are currently listed in the National Register of Historic Places, including 19 properties that are available for management (see Appendix A). Overall, the rural

landscape in CVNP includes 58 properties with 175 structures including historic structures listed in the National Register, potentially eligible historic structures, and non-historic structures. Listed and potentially eligible structures are managed under a stricter interpretation of the guidelines than other structures.

3.1.4. Cultural Landscapes

According to *NPS Management Policies* (NPS 2001e) and *Cultural Resource Management Guidelines* (NPS 1997a), all cultural landscapes are to be managed as cultural resources regardless of the type or level of significance. Management actions are to focus on preserving the physical attributes, biotic systems, and uses of a landscape as they contribute to historic significance. Landscapes differ from other cultural resources as changes from both natural processes and human activities are inherent. Because of this innate dynamic quality, preservation treatments seek to protect and preserve the historic character of a landscape over time through the continuity of distinctive characteristics. Thus, the emphasis is on maintaining the character and feeling rather than on preserving a specific appearance or time period.



This view looking east towards the historic Point Farm includes the farmhouse and barn. This farmstead is available for use under the proposed action. Currently, the house is used by the park as offices and the barn is used by a local farmer under a short-term lease agreement.

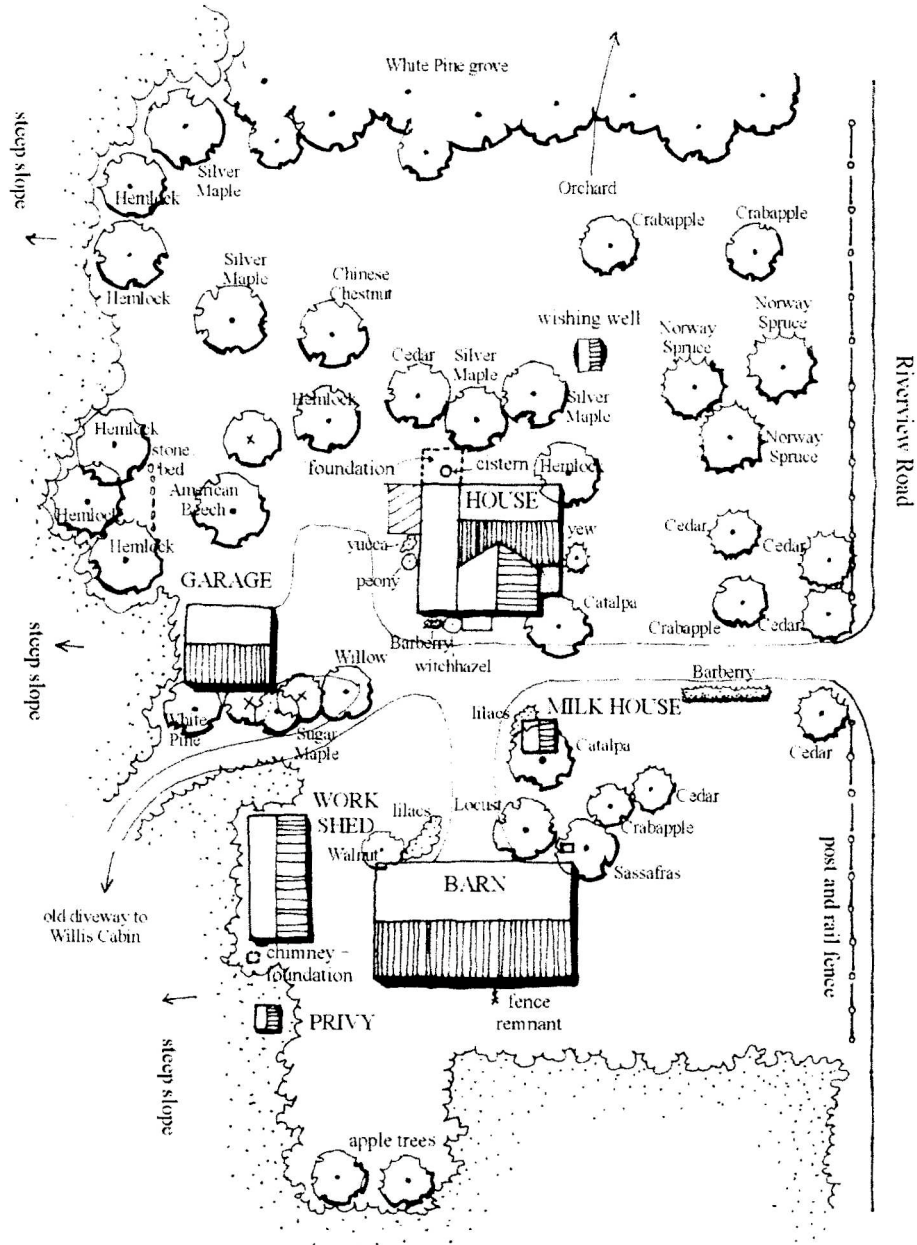
At CVNP, the rural landscape is the primary cultural landscape that may be impacted by the alternatives proposed in this draft EIS. The rural landscape is generally classified as a vernacular landscape - a landscape that exhibits the historic activity as well as the cultural and aesthetic values associated with agriculture. At a park-wide scale, the rural landscape is physically characterized by the spatial organization and land use patterns created by contrasting patterns of farmsteads, hardwood forests, open meadows, row crops, and pastures. Remaining farmsteads, structures, and fields typically represent more than one phase of agricultural development, as farming was an evolutionary practice dependent on market forces.

At a smaller scale, farms are independent rural landscapes that also serve as component landscapes to the larger park-wide landscape. Farms are typically composed of the farmstead (house, barns, and outbuildings) and associated lands. Farmhouses are usually located closest to the road and their close proximity to farm outbuildings and fields represents an isolated or semi-isolated setting which is one of the most dominant characteristics of American farmsteads. Typical building types and styles are representative of the various farming eras and are described in the previous section.

Associated lands consist of the farmstead curtilage and fields. The farmstead curtilage is generally defined to be the land immediately surrounding the farm structures. Its use is typically directly related to the use of the structures. In addition, distinctive circulation

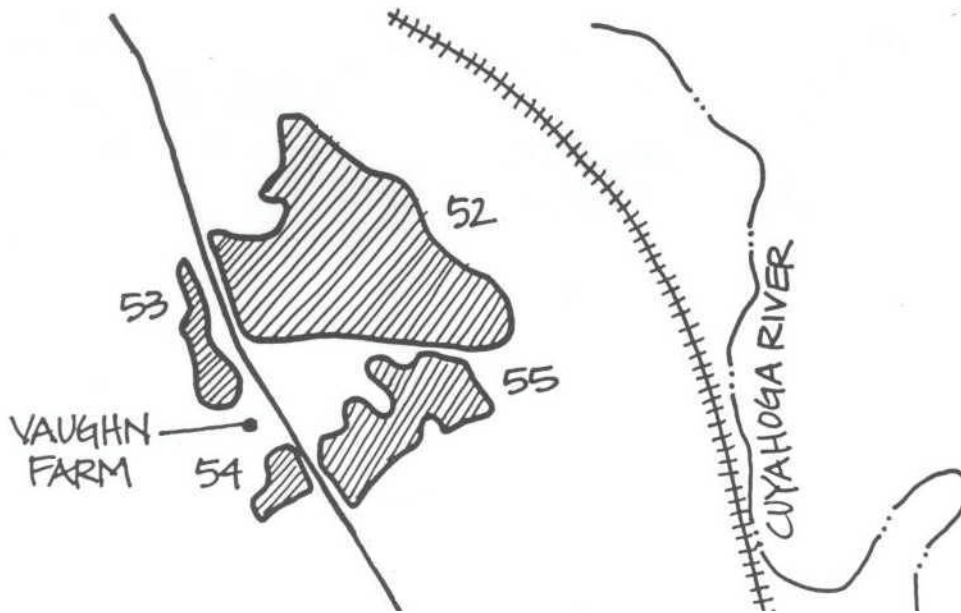


A view looking northwest at the historic Vaughn Farmstead. This photo depicts a typical farm landscape comprised of a cluster of structures, circulation routes, fencing, vegetation, and open field.



A site plan for the Vaughn Farmstead showing the curtilage including structures, circulation patterns, small-scale features, and vegetation. Source: Richard Vaughn Farm Cultural Landscape Inventory, sketch by M. Weaver, 1999.

patterns, small-scale features such as wells or troughs, and planted vegetation, whether utilitarian or ornamental in nature, relate the land with a rural lifestyle. Fields are typically located adjacent to farmsteads and the farmstead curtilage. These fields have various shapes and sizes due to rugged terrain and irregular drainage, although they were originally delineated according to the grid system. Fields are located in well-drained uplands and in the rich soils of the floodplain. The wooded valley walls were also cleared and used as pasture and orchards. Depending on the era and the market forces, corn,



This drawing depicts the spatial relationship of associated fields to the Vaughn Farmstead.

wheat, swine, or dairy cattle may have dominated these agricultural lands among various other secondary crops and livestock types. Nonetheless, these lands served a rural productive purpose.

As described in detail in Appendix G, fences are traditional character-defining elements of the rural landscape. Fencing serves to organize and regulate the landscape from boundary and field delineations to farmyard spaces. Remnant fencing is typically repaired and preserved when possible and new fencing built to meet modern functional needs while being compatible to the historic setting. Historic fence types need not be replicated, as a false representation of historic landscape elements is undesirable. However, the reestablishment of fences and fence lines is valuable in portraying the character, look, and feel of the rural landscape.

Over time, CVNP has lost miscellaneous elements of farms. In particular, farm structures and fences have been lost to deterioration and removal and farm fields and land use patterns have been lost to natural succession. In some cases, even entire farmsteads have been lost. Despite this decline, a sufficient number of farmsteads, structures, and fields still remain in varied conditions throughout the park to convey a sense of its historic rural heritage. Efforts to improve the condition of remaining farmsteads, structures, and fields will improve the historic rural character of the landscape. CVNP typically conducts rehabilitation measures to improve cultural landscapes since this preservation treatment method acknowledges the need to alter or add to the landscape in order to meet new or continuing uses while retaining historic character. In the case of the rural landscape, compatible new uses are generally acceptable as a means of improving, protecting, and preserving the landscape's historic character. However, it is preferred that the agricultural

use be continued, even if physical change or the implementation of new farming technologies occurs, as it better maintains and portrays the historic pattern of use and, in turn, the rural character and feeling of the landscape. In essence, with continued agricultural use, the historic living and working rural landscape of CVNP is preserved and perpetuated functionally and aesthetically.

In addition, farmsteads and lands historically worked together as one functionally related unit for agricultural purposes. This holistic concept, in addition to the rural appearance and rural function of individual farm elements, is significant to the portrayal of the historic rural character. This applies first at the farm level but then at the park scale where it is assumed that the more farms that are holistically functioning for agricultural purposes, the better the overall portrayal of the overall historic rural character and thus, the larger rural landscape scene.

As described in Appendix D, 85 properties with 267 structures and about 1,345 acres of land currently contribute to the contemporary rural landscape. Only a portion of this landscape (58 properties) is available for management and therefore potentially affected by the proposed action.

In general, the 34 National Register properties in the park tend to focus on farm structures and often are not listed with all of the historically associated field acreage, although some may be represented. Eighteen of these properties are individually listed either on their own merit or under the *Agricultural Multiple Properties Document* (NPS 1992a). Twelve of these properties are listed as contributing to the Everett Historic District and four of these properties are listed as contributing to the Boston Mills Historic District.

The Everett Historic District was nominated to the National Register in 1994 for its significance as a crossroads community during the period 1830-1935. Historically, this district supported the surrounding agricultural community. Nine of the available National Register properties are located in the district. Thus, it is not solely composed of farmsteads but also consists of properties associated with the services that supported the agricultural community.

The Boston Mills Historic District was nominated to the National Register in 1992 for its association with the Canal Era and later company town period of the village's development (1827-1927). Although it was not nominated for its agricultural association, the district was also historically a small rural village. Four of the available National Register properties are located in this district.

For the purposes of this EIS, Everett and Boston properties are generally referred to as "farm" properties as they are rural in character. In turn, as the "farms" portray rural character, so does the district.

CVNP's National Historic Landmark, the three mile stretch from Lock 37 to Lock 39 along the Ohio & Erie Canal, was originally designated in 1966. Boundary increases occurred in 1975 and 1983. Although this Landmark is not directly related to agriculture

in CVNP it is located immediately adjacent to several farm fields and across the road from a farm property.

CVNP is also directly associated with the Ohio & Erie Canal National Heritage Corridor and the CanalWay Ohio Scenic Byway. Both follow along the Ohio & Erie Canal from Cleveland to Dover/New Philadelphia, Ohio. Rural scenes are common to both the corridor and the byway particularly in the southern portions where farming is still an active lifestyle.

3.2. VEGETATION

3.2.1. Overview

Cuyahoga Valley National Park encompasses a diverse mosaic of natural vegetation types interspersed among various human-developed land uses. Located in the glaciated Allegheny Plateau of northeastern Ohio, natural vegetation of the park currently is comprised of approximately 80 percent mixed-mesophytic forest (Braun 1961), predominantly of oak-hickory associations but also including maple-oak, oak-beech-maple, maple-sycamore, pine-spruce, and hemlock-beech associations. The long history of intensive land uses has left the park with forests possessing vast differences in community age and structure.

Interspersed among these forests are other natural habitats including older field habitats in various stages of succession (approximately 6 percent), wet meadows, and other wetland habitats (approximately 5 percent). Suburban lands comprise approximately 3 percent of the landscape, and include regularly mowed open areas such as lawns, golf courses, and cemeteries. Cultivated agricultural lands make up approximately 4 percent of the park.

Over 900 plant species occur in these various habitats. Nearly 20 percent of the species found in CVNP are exotic species not native to the area. The high number of exotics is probably due to the disturbance history of the park. While there are many exotic species, less than ten are considered invasive species. Invasive plants are those which invade a habitat, displacing native vegetation and often forming large monocultures with limited habitat value.



A typical bottomland forest community, including sycamore, American elm and cottonwood tree species.

3.2.2. Field Habitats

Only natural vegetation associated with field habitats is likely to be directly affected by the proposed action. The field habitats of CVNP are in various states of succession. Over the years, this patchwork of habitats developed as agricultural lands were abandoned and grew into forests. Fields that were abandoned recently are in earlier stages of succession. Other fields have been managed through periodic mowing, which has kept them in an earlier stage of succession.

Open fields are dominated by grasses (e.g., *Poa trivialis*, *Poa sylvestris*, *Panicum virgatum* and *Danthonia spicata*) with many forbs (e.g., *Solidago canadensis*, *Solidago graminifolia*, *Aster nova-borensis* and *Apocynum cannabinum*) present as well. In these fields, there is little woody growth as many undergo regular mowing (golf courses are not considered open fields). Regularly mowed fields comprise about 600 acres of the park boundary.

Other fields are further along in succession. The ground is covered mostly by grasses and forbs, but also includes brambles (*Rubus* spp.) and a limited amount of shrubby species (e.g., gray dogwood (*Cornus racemosa*), smooth arrow-wood (*Viburnum recognitum*), common privet (*Ligustrum vulgare*), oleaster (*Elaeagnus multiflora*), and autumn olive (*Elaeagnus umbellata*)). Shrubs do not dominate large areas. Seedlings and saplings of fast-growing trees such as poplars (*Populus* spp.) may be present. About 835 acres of this habitat exists in the park boundary.

Some areas possess significant shrub/sapling growth but are not considered forest, as they do not possess a closed canopy. These are areas in which the majority of the ground is covered with woody growth greater than six feet in height, with a few emergent trees of six to 20 feet in height developing above the shrub layer. These fields are typically vegetated with shrubs and young trees of up to six inches in diameter at breast height - (e.g., hawthorn (*Crateagus* spp.), red maple (*Acer rubrum*), wild cherry (*Prunus serotina*), oaks (*Quercus* spp.), bigtooth aspen (*Populus grandidentata*) and white ash (*Fraxinus americana*)). Approximately 640 acres of this habitat exist in the park boundary.

Only vegetation within and directly adjacent to the proposed agricultural lands (i.e., 1,345 acres of field habitats and current agricultural lands) is likely to be directly affected by the proposed action. For the purposes of analyzing impacts on vegetation, proposed agricultural lands are best categorized as either "open fields" or "older fields." "Open fields" include currently or recently managed fields (i.e., agriculture or mowed areas) and grassy meadows (e.g., recently disturbed sites) that are early in succession but do not possess significant shrub/sapling growth. There are 171 "open fields" encompassing approximately 1,083 acres. "Older fields" are those areas that have significant shrub/sapling growth to heights sometimes greater than six feet. Seventy "older fields", ranging in area from 0.1 acre to 65 acres, cover approximately 262 acres of park land.

3.2.3. Forests

It is expected that while forest habitats are not directly affected by the proposed action, forest vegetation in the park may be indirectly affected by some alternatives. The forests of CVNP can be broadly categorized as upland or bottomland forests, based on landscape position. In the upland forests, the dominant vegetation is a mix of hardwood trees, mainly oaks, maples and beech. The groundcover in the upland forests tends to be sparse. In bottomland forests, the predominant vegetation is mainly deciduous hardwood trees, mainly ash, cottonwood (*Populus deltoides*), sycamore (*Platanus occidentalis*) and red maple. The groundcover in these forests tends to be thicker than in the uplands. A recent study has suggested that the ability of bottomland forests to regenerate over time is being severely impacted by continued high deer densities, while in upland forests, species diversity seems to decrease when exposed to deer browsing under current conditions at CVNP (NPS 2001c).

3.2.4. Rare, Threatened, and Endangered Plant Species

No federally-listed plant species are known to occur in the park (U. S. Fish and Wildlife Service 2001). However, the U. S. Fish and Wildlife Service indicates that the park is within the range of the federally-threatened northern monkshood (*Aconitum noveboracense*). This plant is found on cool, moist talus slopes or shaded cliff faces in wooded ravines.

Twenty-one state-listed rare plant species are known to occur in CVNP (Table 3.1). These plants occur in various habitats in CVNP. Several of the species occur only in forests, while others are adapted to field habitats. With the exception of butternut (*Juglans cinerea*), there are no recorded occurrences of these state-listed plants within or near proposed agricultural lands. A small population of butternut trees is growing directly adjacent to a proposed field edge.



The fringed gentian, a state-listed potentially threatened species, is found in the park.

Table 3.1. State-listed Rare Plants Occurring in Cuyahoga Valley National Park

Common Name (Scientific Name)	Status	Habitat
Drooping wood sedge (<i>Carex arctata</i>)	E	Forest
Silvery sedge (<i>Carex argyrantha</i>)	P	Forest/Edges
Golden-fruited sedge (<i>Carex aurea</i>)	P	Clearings/open forests
Crawe's sedge (<i>Carex crawei</i>)	P	Wet Meadows/Seeps
Spotted coral-root (<i>Corallorrhiza maculata</i>)	P	Rich open forests
Rock-harlequin (<i>Corydalis sempervirens</i>)	P	Openings/sandstone outcrops
Yellow lady slipper (<i>Cypripedium calceolus</i> var. <i>pubescens</i>)	P	Steep forested ravines/slumps
Variegated horsetail (<i>Equisetum variegatum</i>)	T	Wetlands/calcareous seeps
Closed gentian (<i>Gentiana clausa</i>)	P	Pond margins/wetlands/ditches
Fringed gentian (<i>Gentianopsis crinita</i>)	P	Fields/calcareous seeps/road cuts
Butternut (<i>Juglans cinerea</i>)	P	Open or forested floodplains/edges
Ground juniper (<i>Juniperus communis</i>)	E	Open fields/pastures/open forests
Round-fruited pinweed (<i>Lechea intermedia</i>)	T	Dry eroding slopes/forests
Weak spear grass (<i>Poa languida</i>)	P	Dry Oak forests
Sessile-fruited arrowhead (<i>Sagittaria rigida</i>)	T	Brackish water/muddy banks
Canadian buffalo berry (<i>Shepherdia canadensis</i>)	P	Full sun/fields/open forests
Leafy goldenrod (<i>Solidago squarrosa</i>)	T	Fields/open areas
Swamp oats (<i>Sphenopholis pensylvanica</i>)	P	Wet areas in full sun
Shining ladies' tresses (<i>Spiranthes lucida</i>)	P	Wet meadows/lake shores/damp forests/pastures
Great Plains ladies' tresses (<i>Spiranthes magnicamporum</i>)	P	Dry, grassy fields
Lesser ladies' tresses (<i>Spiranthes ovalis</i>)	P	Moist forests/forested pastures/moist fields
State status: E = state endangered, T = state threatened, P = state potentially threatened. Sources: status - ODNR 2000; habitats - Andreas 1986, McCance et al. 1984.		

3.3. WILDLIFE

This section describes the wildlife and wildlife habitat resources in the park that may be affected by the proposed action.

3.3.1. *Wildlife Habitat Types and Landscape Characteristics*

The CVNP forests described in Section 3.2 are heavily fragmented by roads, suburban development, recreational areas (ski areas, sledding hills, picnic areas, golf courses, events sites), a railroad, utility corridors, and agricultural lands throughout the park. The largest and oldest semi-contiguous tracts of mature forest are between approximately 750 and 1,800 acres in size. These are located in Brecksville and Bedford reservations managed by Cleveland Metroparks in the northern half of CVNP and in the Virginia Kendall, Blossom Music Center, and Oak Hill areas in the southern half of the park. Even these tracts, however, are internally fragmented and dissected, with correspondingly large amounts of habitat edge, which reduces their habitat value for forest interior species.

Currently there are approximately 4,100 acres of “open” habitat areas of varying quality (including agricultural, old-field, grassy areas, wet meadows/marshes, campgrounds, golf courses, etc.) within the CVNP boundary (Appendix D). More than half of these areas are known or believed to be actively managed by the NPS or other public and private landowners through mowing or agriculture.

Fields planted at some time in hay (including alfalfa rotated with clover) or oats, potentially present the highest quality habitat for grassland birds and butterflies when compared to most other agricultural land uses. Small mammals such as meadow voles (*Microtus pennsylvanicus*) and other microtine rodents that are important food sources for raptors and coyotes also rely on this habitat. On federal land, these fields (averaging 14 acres in size) comprise 231 acres, or nearly half of the 475 acres currently cultivated by SUP holders.

Of the existing unmanaged open space in the park, approximately 642 acres are currently in later successional stages consisting of a well-developed shrub/sapling layer greater than six feet tall, with some emergent trees. Approximately 41 percent of this taller “older field” habitat (262 acres) will be directly affected by the proposed action. These “older fields” provide habitat for species associated with early successional (young) forests.

The amount of total habitat in the park as a proportion of the regional landscape is unknown. However, one study of land use changes in Ohio (Kaplan et al. 2001) indicates that the region around and including Cuyahoga and Summit counties has undergone substantial changes between 1974 and 1992. Specifically, urbanization has increased by 5-25 percent and the amount of farmland has decreased by more than 20-30 percent. Additionally, these counties have a high proportion of land in protected status (>13

percent of total acreage). This suggests that over time, as habitats are lost outside of protected areas, actions that influence extent of habitats inside parks such as CVNP will have increasing regional significance.

3.3.2. Animal Populations

Faunal species detected in the park include 194 species of birds, 91 aquatic macroinvertebrates, 43 fish, 32 mammals, 22 amphibians, and 20 species of reptiles. In addition, 56 butterfly species have been documented in the park.

Populations of a number of wildlife species have increased substantially in the last decade both locally and regionally, to the extent that these species have recently reached nuisance levels within the park. Most notably, raccoons (*Procyon lotor*), woodchucks (*Marmota monax*), Canada geese (*Branta canadensis*), and white-tailed deer are ubiquitous throughout the park, and consistently generate the greatest number of conflicts with humans. Additionally, beaver and coyotes (*Canis latrans*) have increased in numbers over the last decade and the incidence of human conflict with these species has also become more frequent.

Wildlife most likely to be affected by the proposed action in this draft EIS are white-tailed deer, terrestrial birds, coyotes, beaver, potential “nuisance species” such as raccoons, woodchucks, and Canada geese, and butterflies. The status of each of these species or groups is addressed in more detail below.

Because the Cuyahoga River, wetlands, and watercourses will have protective buffers (NPS 2002a, b), impacts of the proposed action to aquatic and wetland-associated species such as fish, macroinvertebrates, and amphibians are generally not expected and therefore will not be discussed further in this section. Instead, any possible impacts on wildlife associated with wetlands and farm ponds are discussed in Section 4.4 - Impacts on Water Resources.

3.3.3. Threatened and Endangered Animal Species

Detections of the federally-threatened bald eagle (*Haliaeetus leucocephalus*) have been limited to 1-2 non-breeding individuals seen perched near the Cuyahoga River during winter months. No nests have been found within the park, though nests have been found in neighboring counties.

The federally-endangered Indiana bat (*Myotis sodalis*) was recently found in the park. The park contains an abundance of apparently suitable habitat. Suitable breeding and roosting habitat for Indiana bats can vary widely, but typically consists of large (>10” diameter) trees with peeling bark located near a permanent water source and good foraging areas. Foraging habitat is typically in floodplain forests and riparian areas. An

inventory is being conducted during the summers of 2002-2003 to locate additional occurrences of Indiana bats in the park.

The park is also within the range of the eastern massasauga (*Sistrurus catenatus catenatus*), a candidate species for listing under the Endangered Species Act (ESA) and listed as endangered by the State of Ohio. While the type of wet habitats this snake prefers is found in CVNP, there is no record of this species ever occurring within the park.

There are no designated Critical Habitats or wilderness areas within the vicinity of the park.

Fifteen bird species detected in the park are Threatened or Endangered in the State of Ohio (ODNR 2002). Many of these species are transients that do not breed in the park. Some breeding species utilize primarily wetland habitats. Only those that are known to breed in the park in terrestrial habitats may be potentially affected by the proposed action. These species are discussed as a group together with other birds of conservation concern in Section 3.3.5.

Consultation with the U.S. Fish and Wildlife Service has been initiated in accordance with the ESA.

3.3.4. *White-tailed Deer*

Deer populations have been monitored in CVNP since 1990 using roadside spotlight surveys (NPS 1987b). Results of those surveys have demonstrated a population increase of approximately 9 percent annually over the past 12 years, with the population doubling in that period of time. Current estimates of deer densities within CVNP range between 47-89 deer per square mile at various locations across the park, approximately 2-4 times higher than densities shown elsewhere to be associated with significant adverse impacts on forest ecosystems (Alverson et al. 1988; Tilghman 1989).



White-tailed deer are quite abundant in the park.

Since 1996, winter deer distribution across the park has been examined using transect surveys of fecal pellet groups at up to 200 survey locations established in a systematic grid spanning the entire park (NPS 1997d). Results of those surveys have indicated that deer are distributed patchily across CVNP, with a few areas of very high relative abundance, surrounded by areas of relatively uniform, moderate abundance.

White-tailed deer are generalist herbivores that forage on a wide variety of plants across most natural habitats. Highest quality deer habitat typically includes clearings located

near forested areas (Halls 1984). Deer in CVNP have an abundance of agricultural, mowed, suburban, and early-successional forest clearings interspersed within a forested landscape, which presumably contributes to the high deer densities observed within the park. Deer occupy all habitats within the park, but tend to forage primarily in and around these clearings and open lands, as evidenced by spotlight surveys, fecal pellet surveys, and an assessment of wildlife damage in agricultural areas of the park (Labovitz 1994).

Fecal pellet surveys (NPS 1997d) also suggest that winter deer aggregations occur in areas that provide good shelter from inclement weather (e.g., conifer stands) near good foraging areas (old fields, agriculture, suburban areas where supplemental feeding occurs). Pellet surveys in summer 1997 indicated a shift in deer distribution, with smaller aggregations occurring in different areas than during winter, and a more even distribution overall. This shift probably is related to seasonal changes in food availability from woody browse to herbaceous growth and foliage of woody plants, as well as behavioral changes as deer become more solitary (NPS 1997d) and shelter from harsh weather is not as critical. However, the densest aggregations still were centered in areas of open lands bordered by forests.

Heavy deer browsing has been documented to have serious deleterious effects in forests, old fields, and agricultural lands of CVNP (Labovitz 1994; NPS 2001c; NPS 2001g). Data from an experimental study, using 10m x 10m deer exclosures begun in 1999, indicate that deer browsing in fields and forests appears to be suppressing seedling growth and forest succession/regeneration (NPS 2001c). At current levels of deer browse, less than 2 percent of large-flowered trillium (*Trillium grandiflorum*) plants (a forest wildflower) produce flowers, compared with 23 percent of plants excluded from deer browsing (NPS 2001g). High levels of deer browse also have an adverse impact on species richness and abundance of forest understory birds (Petit 1998). A survey of wildlife damage in agricultural lands of the park (Labovitz 1994) determined that deer were one of the primary causes of agricultural losses, particularly for sweet and field corn, orchards, and pumpkins. Deer were also observed consistently in hay, oats, clover, and wheat fields, though damage to those crops appeared to be minimal. One farmer, who currently grows corn, employs auditory devices (e.g. corn cannons, barking dog tapes) to deter deer and other wildlife on private land. Several farmers kill deer each year on private land in the park under nuisance wildlife permits from the state of Ohio.

Rapid increase (15 percent annual) of deer populations between 1990-1996, along with a concurrent rise in deer-vehicle collisions and apparent impacts on vegetation led to preparation of an EA and Deer Management Plan (NPS 1997b) that recommended reduction of the deer population through culling. However, the final EA and accompanying Finding of No Significant Impact (NPS 1997c) were ultimately withdrawn due to a lawsuit, and no deer management has been implemented. Since that time, the rate of population increase has slowed and numbers detected during spotlight surveys appear to be fairly stable. Yet, impacts on forest habitats over this stable period have been substantial (NPS 2001c, 2001g). The park has initiated early planning steps for a full Environmental Impact Statement analysis under NEPA to assess possible management alternatives for reducing these impacts.

Table 3.2. Terrestrial Bird Species Known to Breed in CVNP and of Conservation Concern in Ohio

Common Name (Scientific Name)	Status*	Habitat
Acadian flycatcher (<i>Empidonax virescens</i>)	PIF	Forest
American woodcock (<i>Scolopax minor</i>)	PIF	Early succession
Canada warbler (<i>Wilsonia canadensis</i>)	SI, PIF	Forest
Cerulean warbler (<i>Dendroica cerulea</i>)	SI, PIF	Forest
Dark-eyed junco (<i>Junco hyemalis</i>)	ST	Forest
Field sparrow (<i>Spizella pusilla</i>)	PIF	Early succession
Golden-winged warbler (<i>Vermivora chrysoptera</i>)	SE, PIF	Early succession
Henslow's sparrow (<i>Ammodramus henslowii</i>)	SI, PIF	Grassland
Hermit thrush (<i>Catharus guttatus</i>)	ST	Forest
Kentucky warbler (<i>Oporornis formosus</i>)	PIF	Forest
Louisiana waterthrush (<i>Seiurus motacilla</i>)	PIF	Forest
Red-shouldered hawk (<i>Buteo lineatus</i>)	SI	Forest
Winter wren (<i>Troglodytes troglodytes</i>)	SI	Forest
Wood thrush (<i>Hylocichla mustelina</i>)	PIF	Forest

* SE = Endangered in Ohio, ST = Threatened in Ohio, SI = Special Interest in Ohio (ODNR 2002); PIF = Partners in Flight bird of conservation concern (Hunter et al. 1993 - current Ohio Hills and Allegheny Plateau lists)

3.3.5. Terrestrial Birds

Natural habitats within CVNP provide breeding habitat for a minimum of 105 terrestrial bird species. A total of 15 breeding species are “of concern” for conservation (Table 3.2).

One of these species is endangered, two are threatened, and five are of special interest at the state level (ODNR 2002). At least 10 species are of conservation concern nationally or regionally and are priority species as determined by the international conservation consortium, *Partners in Flight* (Hunter et al. 1993; Partners in Flight 2002). Most of these species of concern have exhibited steep population declines throughout their range or regionally due to habitat loss and degradation. In CVNP, 10 of these species of concern are associated with mature forests, three are dependent on early successional forests (“older fields”), and one is specific to grasslands (Table 3.2). Nearly all of these species require relatively large, unbroken tracts of habitat for breeding. Species inhabiting old fields and grasslands usually require very specific vegetative features and successional stages for suitable breeding and foraging habitats.

Other species that are rare in CVNP, such as ovenbird (*Seiurus motacilla*) are not officially of concern in the region, but are known to be sensitive to forest tract size, and their rarity is probably related to existing fragmentation in the park. A study of nesting success of understory forest birds within CVNP (Petit 1998) indicated that even the most common species have success rates too low to sustain their populations. An assessment of relative abundance of forest birds and their specific habitat requirements within the park is currently underway.

3.3.6. Coyote

Coyote populations have been monitored in CVNP since 1993 using auditory (vocal response to taped howls) counts. An index of abundance generated from these counts suggests an annual population increase of 14 percent, with the population doubling in the nine-year period (NPS 1993a).

An analysis of coyote diet in the park (Cepek 2000) indicated that meadow voles (*Microtus pennsylvanicus*) were the primary prey (18 percent of the diet), followed by eastern cottontail rabbits (*Sylvilagus floridanus*; 13 percent), white-tailed deer (13 percent), and raccoons (12 percent). Although Cepek (2000) had evidence of at least one fawn killed by coyotes, he concluded that the deer component of the diet came primarily from carrion. Similarly, the author speculated that raccoon also was consumed primarily as carrion. Coyotes in CVNP were characteristically opportunistic, with 9 percent of the diet comprised of plant material and seeds. At least some observations of coyotes feeding on crabapples were recorded, though the methodology of scat collection was biased against detecting fruits and vegetable matter in the diet.

Habitat preferences of coyotes in CVNP are not currently known although research on this issue is planned for 2002. Other studies indicate that coyotes are habitat generalists with preferences for open habitats and forest edges as hunting areas (Theberge and Wedeles 1989, Crawford 1992). The high prevalence of voles and rabbits in diets of coyotes in CVNP (Cepek 2000) may suggest these same habitat preferences in the park.



Coyote sightings are becoming more common in the Valley.

Direct interactions between the public and coyotes remain relatively rare, though the frequency of complaints is increasing. Public awareness of the presence of coyotes in the park and concern about potential injury to themselves or pets has increased in the last two years.

Coyotes are considered a major threat to livestock, particularly sheep, and poultry throughout their range. However, only a few complaints about coyote predation in agricultural or residential areas within CVNP have been documented. These were unsubstantiated reports of predation on poultry and pet cats. Lack of complaints documented thus far probably reflects a current lack of susceptible livestock within the park, as well as the fact that the few farmers with livestock employ tactics (e.g., penning animals at night) to minimize risk of coyote (and raccoon) predation.

3.3.7. *Beaver*

Beaver populations reappeared in Ohio in 1936 after being extirpated in the state by over-trapping. Beaver now occupy two-thirds of the state and, in 2000, the population was estimated at nearly 30,000 animals statewide (ODNR 2001a). The most dramatic increase in the state beaver population occurred during the 1990s, when the population more than doubled. Beaver are believed to have moved into CVNP in the 1980s, and have been responsible for increasing the number of wetlands and the abundance of wetland animal species, especially great blue herons, in the park (NPS 1992b). Beaver have been surveyed in CVNP since 1991 to determine colony locations and extent of activities (NPS 1992b). Over the decade in which surveys were conducted, the beaver population in the park appears to have remained relatively stable, with few new colonies arising.

Nevertheless, within established locations, beaver activity can increase and expand, causing problems for park structures and lands, roads and railroads, and for adjacent landowners, causing them to often be considered a nuisance. Responses to these problems have included installation of water level control devices in beaver ponds, destruction of beaver dams, physical protection of trees, and a few attempts at live-trapping and relocation of animals (the relocations were unsuccessful). Although lethal control is an option specified as a management tool (NPS 1992b), resource management personnel have never had to employ lethal control to date. However, residents in retention properties in the park have occasionally contracted nuisance trappers for lethal control for beaver problems.

3.3.8. *Other Nuisance Wildlife*

With an increase in habitat fragmentation, the sprawl of suburbia with its abundant supply of easy food resources, and the lowering of consumer demand for pelts, raccoon populations in Ohio and most of the eastern U.S. have increased dramatically. In Ohio, the raccoon population apparently has almost quadrupled in size since 1987 (ODNR 20001a). Such rapid population growth has made the raccoon one of the most common nuisance animals in urban areas of the state. This, along with fear of the spread of raccoon-strain rabies into the state from the east, has led the state to institute a regulation that all captured raccoons be released on-site or euthanized, rather than relocating them elsewhere.

Woodchuck populations are not specifically monitored by the state or in CVNP, but are widespread and abundant throughout the park. It probably also is safe to assume that with the protection and abundant food and shelter resources afforded them in suburban areas, woodchucks have increased along with other urban wildlife species.

Canada geese also have adapted well to the suburban and park landscapes with an abundant supply of human-made ponds surrounded by mowed lawns, usually protected from predation. The year-round supply of high quality food resources in these areas have caused some populations of a normally migratory species to drop their migration habit,

creating new “resident” populations in urban areas over the last 20 years. Under these ideal habitat conditions, resident urban goose populations continue to increase. In response to this population growth, the Ohio Department of Wildlife extended hunting seasons to target the resident versus migratory geese. This hunting pressure, however, would not greatly affect resident geese within CVNP.

Raccoon, woodchuck, and Canada goose populations have not been monitored directly in CVNP, and no systematic effort has been made to track the frequency of nuisance reports within the park. However, it is safe to assume that populations of these species in the park have followed the same or more dramatic population trends seen elsewhere in the state. Additionally, these species are certainly the most frequent nuisances for landowners within and adjacent to the park.

All three species were found to be causes of agricultural damage in CVNP (Labovitz 1994) though damage by Canada geese in that study was relatively minor. Raccoon and goose damage was greatest in sweet corn, woodchucks damaged sweet corn and pumpkins, and geese grazed on young oats and clover plants (though this did not have significant impact on the yield). Only one farm in that study (Crooked River Herb Farm) was cultivated with garden vegetables and herbs. Because of the high likelihood of complete loss due to wildlife damage, intensive prevention measures were employed, including the presence of guardian dogs. No wildlife damage was incurred on that land during the one-year study.

3.3.9. *Butterflies*

Since 1996, butterflies have been surveyed at one old field site (Terra Vista) in CVNP. This site is one of 30 sites monitored statewide, as part of a program initiated by the Cleveland Museum of Natural History. None of the species detected in this CVNP survey are threatened or endangered. In general, butterfly species are most diverse and abundant in old field habitats. Of the 91 species known to occur in Summit and Cuyahoga counties, nearly half (47 percent) require open fields or grassland habitats, 19 percent depend upon wetland or riparian areas, and 5 percent inhabit forest/field edges. Moreover, alfalfa, clover, and milkweed are critical adult plant foods for 64 percent of all butterflies in these counties. This same distribution of habitat requirements was evident for butterfly species found within CVNP.

3.4. WATER RESOURCES

This section describes the water resources in the park, including rivers, streams, wetlands, and ponds, that may be affected by the proposed action.

3.4.1. Rivers and Streams

More than 22 miles of the Cuyahoga River pass through CVNP. One 8-mile segment of this part of the river (between Rt. 82 and Peninsula) has been listed on the Nationwide Rivers Inventory (NRI). The NRI is a register of river segments that potentially qualify as national wild, scenic or recreational river areas under the National Wild and Scenic Rivers Act. The river has been designated as an American Heritage river. The Cuyahoga River drains more than 800 square miles of Northeastern Ohio; only 6.5 percent of this drainage area is within CVNP. Valley walls and tributary ravines characterize the watershed with steep forested slopes rising 100 to 600 feet above the floodplain.

According to topographical maps published by the U. S. Geological Survey, more than 20 perennial streams totaling over 200 miles in length exist within the park boundary. Some of the larger tributaries (e.g., Tinkers Creek and Furnace Run) drain areas larger than 50 square miles while most others range between 2-20 square miles. Additional unmapped ephemeral streams and headwaters also exist.

Water quality in the Cuyahoga River has been historically poor with ongoing major concerns relating to Akron's Waste Water Treatment Plant discharges, combined sewer overflows, faulty septic systems, increased urbanization and erosion (Ohio EPA 1999). Similar impacts affect water quality in park streams. Water quality, habitat quality, and macroinvertebrate communities vary across park streams from good to poor (Stewart et al. 1998). However, in general, most park streams meet the warm water habitat standards set by the State of Ohio (Ohio EPA 1999). The park annually monitors 19 streams for physical and chemical water quality characteristics.



Approximately 22 miles of the Cuyahoga River meander through the park.

Only watercourses near proposed agricultural areas are likely to be affected by the proposed action, with the potential for impact significantly decreasing after distances of 100-200 feet (Wegner 1999). Watercourses near areas assigned to grassland habitat

management would not likely be affected. Watercourses most likely to be affected by the proposed action are summarized in Table 3.3. Thirty-two proposed agricultural fields are within approximately 200 feet of the Cuyahoga River with most existing within the floodplain. One of those fields and two additional fields are within 200 feet of one of the largest tributaries (Tinkers Creek). Among the smaller tributaries, Stanford Run has six potential farm fields within approximately 100 feet. Twelve other smaller tributaries have from one to four potential agricultural fields within 100 feet. Other ephemeral streams may also exist in or near the proposed agricultural areas but have not been identified at this time.

Riparian buffer zones for the river and its tributaries vary in size and quality, but range from several hundred feet of relatively healthy forested riparian buffer to virtually no buffer at all in some highly impacted areas. While agricultural SUPs have included buffer requirements to the Cuyahoga River ranging from 15-50 feet over time, until recently, the NPS has not formally required that specific buffer areas to all park watercourses be maintained. This has resulted in some continued degradation of these riparian areas. However, the park is currently in the process of applying a new *Riparian Buffer Plan for Agricultural Lands* (NPS 2002a) which assigns 50-120 foot buffer zones to all watercourses based on drainage size and local conditions. Riparian buffers are summarized in Appendix H.

Table 3.3. Rivers and Streams Potentially Affected by Proposed Agricultural Activities

<u>Large Drainages (>50 sq. mi.)</u>	<u>Fields within 200ft.</u>
Cuyahoga River	32
Tinkers Creek	3
<u>Small Drainages (0.5-20 sq. mi.)</u>	<u>Fields within 100ft.</u>
Adam Run	1
Dickerson Run	1
Langes Run	4
Peninsula Run	3
Robinson Run	2
Salt Run	1
Stanford Run	6
Unnamed Tributary 1	2
Unnamed Tributary 2	2
Unnamed Tributary 3	1
Unnamed Tributary 4	2
Unnamed Tributary 5	1
Unnamed Tributary 6	1

3.4.2. Wetlands

Many wetland areas exist in CVNP. A recent park-wide wetland inventory indicates that more than 1,200 wetland areas encompassing approximately 1,700 acres exist in CVNP (Davey Resource Group 2001). Most CVNP wetlands are small, with only 190 greater than an acre in size and only 35 greater than 10 acres in size. Additional small wetlands may yet remain undetected.

Wetland types found in the park include marshes, wet meadows, scrub/shrub wetlands and forested wetlands. Small emergent wetlands occurring in isolated depressions fed by surface water are most common. Small wetlands are also often found at the head of small, intermittent drainage ways, adjacent to ponds or as hillside seeps where groundwater flows out of a hillside. Many wetlands are partially or completely forested or include a shrub component. The largest wetlands are located within the Cuyahoga River floodplain and include emergent, shrub, and forested areas.

Only wetlands in or near proposed agricultural areas are likely to be affected by the proposed action, with the potential for impact decreasing over distance. Wetlands within 100 feet of agricultural areas would be most likely to be affected by the proposed action but activities occurring within 300 feet may impact wetland habitat quality in certain situations (Castelle et al. 1992).

Wetland inventory maps and site-specific wetland surveys indicate that a total of approximately 230 wetlands are located within 300 feet of proposed agricultural land parcels (Davey Resource Group 2001; URS Corporation 2002). This includes nine relatively large wetlands greater than 10 acres in size. The vast majority of wetlands (>180) are small wetlands estimated to be less than one acre in size.

Approximately 53 known wetland areas are within or directly abut proposed agricultural lands. Approximately 85 additional wetlands are within 100 feet. Approximately 1/3 of the potentially affected wetlands currently has no agricultural activity or mowing occurring within 300 feet. Buffer zones for the wetlands currently associated with agriculture vary in size and quality. The park is currently in the process of applying a new Wetland Protection Plan for Agricultural Lands (NPS 2002b) which assigns buffer zones to all wetlands based on size, quality, and local conditions. Wetland buffers are summarized in Appendix H.

In addition to providing habitat for many plants and animals, special wetland characteristics such as vernal pools which serve as breeding areas for amphibians and potential roosting trees for the endangered Indiana bat (*Myotis sodalis*) exist in some of these wetland areas. A great blue heron rookery (*Ardea herodias*) at Pinery Narrows is located approximately 200 feet across the Cuyahoga River from an area that is currently mowed seasonally.

Wetland systems in CVNP have been greatly affected by many years of disturbance and land use changes within the Cuyahoga Valley. The Ohio & Erie Canal, railroad and road

beds, dredging of stream channels, utility corridors, filling and grading activities, topsoiling, beaver impoundments, landfills and gravel pits, and drainage for agriculture have all profoundly influenced the current configuration of this large wetland system. Not all disturbances have resulted in a decrease in wetland area. In fact, many of the disturbances may have increased the size of wetlands. Additionally, beavers (*Castor canadensis*) continue to be active in the park and this has also affected the size and distribution of wetlands.

3.4.3. *Lakes and Ponds*

In addition to wetland areas, more than 100 lakes and ponds dot the park landscape, with approximately 70 existing on federal lands. Ponds on federal land range in size from less than 1/10 of an acre to more than 10 acres (e.g., Kendall Lake). All ponds except one (Oxbow) are human-made (i.e., artificial), with many originally created to serve as small farm ponds. Long-abandoned ponds usually have reverted to a more natural state and now have wetland characteristics. Such ponds are treated as natural wetlands, assigned protective buffers and managed for natural resource values. Other artificial ponds are still used as water sources for agricultural activity or managed as recreational resources (e.g. fishing areas) according to the park's Pond Management Plan (NPS 1993b). Managed ponds are often mowed around portions of their perimeter to provide for public access and dam maintenance. Park staff monitors pond water quality every five years. Pond water quality is considered good as all ponds meet State of Ohio warm water habitat standards.

Thirteen ponds are within 200 feet of proposed agricultural areas. Pond characteristics are summarized in Table 3.4. Three ponds currently managed for recreational uses are near current or proposed agricultural lands (Armington, Horseshoe, and Stanford). Tadpole, Fink, and Leyser ponds are currently directly associated with adjacent agricultural use. Most of the 13 ponds currently have known wetland areas directly associated with them (Davey Resource Group 2001; URS Corporation 2002).

Table 3.4. Ponds Associated with Proposed Agricultural Lands

<u>Name</u>	<u>Tract #</u>	<u>Acres</u>	<u>Wetlands</u>	<u>Managed/Current Agricultural Use</u>
Armington Pond	115-36	3.44	Yes	Yes
Bittersweet Pond	121-43	0.21	Yes	
Buena Vista Pond	109-09	0.34	Yes	
Fink Pond	112-24	1.00		Yes
Hickory Pond	109-40	0.21	Yes	
Horseshoe Pond	112-33	3.35	Yes	Yes
Leyser Pond	106-05	< 0.1		Yes
Pittenger Pond	115-33	1.70	Yes	
Prussak Pond	108-27	0.20	Yes	
Stanford Pond	109-66	0.32	Yes	Yes
Tadpole Pond	110-05	0.63		Yes
Turtle Pond	109-57	0.42	Yes	
Wolkin Pond	112-31	1.50	Yes	



More than 1,200 wetland areas encompassing approximately 1,700 acres exist within the park boundary.

3.5. SOCIAL ENVIRONMENT

3.5.1. *Human Component of CVNP*

The natural and cultural components of CVNP are predominant features of the park, but the human component cannot be overlooked. The number of people who live in, work in, and visit the park is significant.

The park spans portions of two Ohio counties (Cuyahoga and Summit). One community in Summit County is surrounded entirely by the park boundary (Peninsula) and there are 14 other communities partially located in or around the park boundary.

CVNP is one of the top 15 most visited national parks in the country, with approximately 3.5 million visitors each year, with the highest visitation occurring during the spring, summer and fall months. During the peak summer season, the number of employees reaches between 150 and 200. The park has an active cadre of volunteers totaling approximately 1,400. The human component of CVNP dominates some areas of the park (e.g., trail systems and visitor centers), but also reaches some remote areas.

The proposed action could impact this human component of CVNP through effects on health and safety, nuisance wildlife, visitor use and experience, and local communities.

3.5.2. *Human Health and Safety*

There are three main issues associated with the proposed action that could affect human health and safety: the amount of electric fencing, the amount of guardian animals that could be used in the park, and potential increases in deer-vehicle accidents.

Electric fences deliver a shock to animals (or people) who come in contact with the fence. This shock deters wildlife from entering a field. Signs placed at regular intervals along the length of the fence alert people of the potential for shock. Guardian animals, such as dogs and llamas, are used similarly to deter wildlife from approaching farmers' crops.

Currently, the amount of electric fencing on federal land is limited. There are four SUP fields (approximately 40 acres) with perimeter electric fencing. Three of these fields are out of sight of visitors and have very significant buffers of trees, slopes, or the river, between the electric fence and visitor use areas. The other field with electric fencing is visible, but has a required buffer of 100 feet between the fence and the Towpath Trail. No reports of people coming into contact with any of these fences have been made. A few other SUP and HPLP farmers use fences, particularly for horse pastures. There is minimal historic fencing on federal land in the park. Three new long-term leases have recently been signed and it is anticipated that these farmers will soon install additional fencing.

There are a few instances where guardian animals such as dogs and llamas are currently used to protect crops and livestock in the park (e.g., on retention property and private farms) though no SUP allows for their use. There have been no reported conflicts with visitors.

Reported deer-vehicle accidents in Cuyahoga and Summit Counties in 2000 were 461 and 623 respectively (ODNR 2001b). Summit County has been among the leaders in deer-vehicle accidents in Ohio for several years. Personal injury generally occurs in about 7 percent of all accidents, with fatalities being rare (Cuyahoga Valley Communities Council 1996). Most deer-vehicle accidents usually occur from October-December during the deer breeding season when deer are most active. Concentrations of deer-vehicle accidents occur in some high volume areas, but generally accidents around the park area are widely distributed (Cuyahoga Valley Communities Council 1996). Accidents involving other smaller wildlife are generally not considered a safety issue. Deer populations are described in Section 3.3.4 and impacts on deer are addressed in Section 4.3.

3.5.3. Nuisance Wildlife

Nuisance wildlife issues were summarized in Section 3.3.8. Nuisance wildlife can cause damage to both agricultural and residential resources, by feeding on crops, landscaping, and gardens. Some animals (e.g. coyotes, raccoons) raise fears over personal safety just by their increased presence. Residents and farmers may be required to increase harassment, deterrent, capture and killing of wildlife in response to these pressures, resulting in costs to those affected.

3.5.4. Visitor Use and Experience

Visitors come to CVNP to use and experience the park in many different ways, but these translate into what they come to "see" and "do." These park resources can be divided into two main categories: scenic values and recreational activities.

3.5.4.1. Scenic Values

The abundant scenic resources of the park, within an hour's drive of three cities (Cleveland, Akron and Canton) containing about 4 million people, make it an attractive destination, as well as a respite from the bustle of city life. Visitors perceive the park to be more remote than it is, probably due to the strong contrast with adjacent developed areas (Schleicher et al. 1994). Evidence of the long history of use by humans is contrasted by the large swaths of more natural areas. Scenic views and vistas from either side of the valley reveal patterns of nature and of humans. Visitors also enjoy parts of the park because of what they do *not* see there - industry, signs, light pollution.

Sight-seeing and pleasure driving are among the most popular activities in CVNP (Anderson et al. 1992) The scenic Cuyahoga River flows through the center of the entire

22-mile length of the park and is fed by many smaller, attractive tributaries. Riverview Road, which is designated on the state and national level as a Scenic Byway, also runs through the entire length of the park. An 8-mile segment of the Cuyahoga River ver has been listed on the Nationwide Rivers Inventory, a register of river segments that potentially qualify as national wild, scenic or recreational river areas under the National Wild and Scenic Rivers Act. Other prominent scenic natural resources include cascading waterfalls such as Brandywine Falls and Blue Hen Falls and the sandstone cliffs and hemlock groves of Kendall Ledges.

Over 250 historic structures, including the historic Ohio & Erie Canal and the adjacent Towpath Trail, Everett Village, the Everett Covered Bridge, and Boston Store are just some of the cultural resources that contribute to the scenic values of the park.

In addition to the federal park lands, scenic metropolitan park areas within the park boundary are managed by Cleveland Metroparks (Brecksville and Bedford Reservations) and Metro Parks, Serving Summit County (e.g., O'Neil Woods, Hampton Hills, Furnace Run).

3.5.4.2.Recreational Activities

Annual Visitor Use Surveys conducted by the NPS provide information about the multitude of reasons why visitors come to CVNP, which include various types of recreational activities, educational programs, and relaxing and enjoying nature.

Walking, running, biking, and hiking on the Ohio & Erie Canal Towpath Trail is very popular. Indeed, the Towpath Trail is probably the most significant recreational resource in the park. When the towpath reconstruction was complete in 1993, park visitation increased by 1 million visitors that year alone (Schleicher et al. 1994). More than 100 miles of other trails traverse the CVNP landscape. Visitors hike, run, and cross-country ski along many of these trails, but many enjoy exploring the park by going 'off-trail'. The desire to get 'off the beaten path', as well as the need to do scientific research, often draws people away from developed trails.

Many visitors come to observe the abundant wildlife. Wildlife species that are most often viewed by visitors are white-tailed deer, beaver, and great blue heron. A large beaver marsh with an active lodge is established as a public wildlife viewing area. Two large heron rookeries are present, one of which (at Bath Road) is established as a viewing area with interpretive signage. Wildlife-viewing visitors also include a large number of amateur birdwatchers.

Other common activities include dog-walking, picnicking, fishing, canoeing, driving, relaxing, and attending park-sponsored programs. Many visitors enjoy learning about nature, history, or culture through ranger-led programs and hikes and visits to the park's four Visitor Centers.

Visitors also come to CVNP to participate in programs offered by the park's many partners, such as Hale Farm & Village, Cuyahoga Valley Scenic Railroad, and Cuyahoga Valley Environmental Education Center, to name a few.

Local farmers report that several thousand visitors annually patronize specialty farms in the park, such as Heritage Farms and Crooked River Herb Farm. Indeed, farm operations such as Szalay's Sweet Corn Farm draw obvious crowds during harvest time.



Pumpkins for sale at a farm stand within the park.

In addition, there are many other businesses offering recreational opportunities within park boundaries. These include, but are not limited to, four golf courses, ski areas, a bed and breakfast, and an outdoor music pavilion (Blossom Music Center).

3.5.5. Local Communities

3.5.5.1. Municipalities

Fifteen municipalities are located partially or completely within the park boundary (Table 3.5). The communities that lie in and around CVNP include cities as large as Akron, (217,074 people) and as small as the Village of Peninsula (602 people) (US Census 2000). Some only have a small amount of area within the park (Akron, <1 percent), but others are largely within the park (Boston Township, 87 percent) or effectively surrounded by the park (Peninsula). The total population of the 15 communities is 337,912 (US Census 2000).

The properties potentially affected by the proposed action are distributed widely across these municipalities (Table 3.5). As it has been occurring throughout this document, a distinction is made between lands versus (properties with) structures. Eleven communities have agricultural lands and properties with structures that are proposed for management. Eight of the communities have less than 100 acres of agricultural land proposed for management by CVNP, while the other three - Boston Township (490 acres; 36 percent), Cuyahoga Falls (302 acres; 22 percent) and Richfield Township (170 acres; 13 percent) - have more.

Agricultural properties with structures are largely concentrated in Boston Township (29; 50 percent) with only two communities, Brecksville (6; 10 percent) and Cuyahoga Falls (5; 9 percent) having five or more of these properties. The other eight communities have less than five properties with structures proposed for management.

For the 54 properties considered as having potential for becoming part of an active farmstead, Boston Township has 10 of the high potential (43 percent) and 18 of the low potential (56 percent) farmsteads. One community has four high potential farmstead properties (Cuyahoga Falls; 13 percent) and one has three low potential farmstead properties (Brecksville; 9 percent).

While the concentration of lands and properties in Boston Township is readily apparent, a few important clarifications are needed. It should be noted that in Boston Township, one of the 10 high potential properties is a barn-only property (Kurowski Barn) and would not become a farm residence. Additionally, half (9) of the low potential properties are located in close proximity to one another in historical Everett Village, where it is highly unlikely that more than one property out of the nine would ever be selected as a farmstead. The NPS is uncertain which one, if any, would be selected at this time.

Similarly, one high potential property in both Bath and Sagamore Hills, and one low potential property in Brecksville are also barn-only properties and would not be used for residential purposes.

Table 3.5. Summary of Municipalities within CVNP

Municipalities	Population	% Area in park	Local	Proposed	Proposed Properties	Potential as Farmsteads		
			Income Tax	Lands (Acres)		H	L	N
Akron City	217,074	<1	2%	0	0	--	--	--
Bath Township	9,635	8	--	44	2	2**	--	--
Bedford City	14,214	12	2.25%	0	0	--	--	--
Boston Heights Village	1,186	33	1.5%	28	2	--	2	--
Boston Township	1,062	87	--	490	29	10**	18	1
Brecksville City	13,382	34	2%	30	6	2	3**	1
Cuyahoga Falls City	49,374	25	2%	302	5	4	1	--
Independence City	7,109	21	2%	7	2	--	1	1
Northfield Center Twp.	4,931	6	--	22	1	--	1	--
Peninsula Village	602	74*	1%	95	3	2	1	--
Richfield Township	2,138	24	--	170	2	--	2	--
Richfield Village	3,286	3	2%	0	0	--	--	--
Sagamore Hills Twp.	9,340	33	--	65	3	1**	2	--
Valley View Village	2,179	35	2%	92	3	2	1	--
Walton Hills Village	2,400	39	1%	0	0	--	--	--
Totals	337,912			1345	58	23	32	3
Sources: Populations from 2000 Census figures (U.S. Census 2000). H = High; L = Low, N = No								
* Peninsula is not completely within the park, but is effectively surrounded by the park boundary.								
** One of these is a "barn-only" property and would not become a residence.								

3.5.5.2.School Districts

Nine school districts cover the area of the park. Only those that have properties that are available for management are likely to be affected by the proposed action. This includes six school districts: Brecksville/Broadview Heights, Independence, Nardon Hills, Revere, Woodridge, and Valley View (Table 3.6). Student enrollments range between approximately 800 – 4,000 students (mean = 2,289). A varying proportion of local, state, and federal funds supports school districts. Many school districts rely largely (>70 percent) upon local revenues comprised mostly of property taxes to support the schools.

The 54 properties that could be used as residences under the alternatives, which exclude the four properties equipped only with barns, are distributed across the six school districts, with the largest amount occurring in the Woodridge School District (40; 74 percent). No other district has more than five.

Woodridge School District contains 16 of the high potential farmstead properties (80 percent) and 23 of the low potential properties (72 percent). However, as mentioned above, nine of the low potential properties are located in close proximity to one another in historical Everett Village, where it is highly unlikely that more than one property would ever be selected from this group as a farmstead. The NPS is uncertain which one, if any, would be selected at this time. Also, only six properties in the Woodridge School District are currently vacant and unused, and 21 already have residential uses.

Woodridge School District has been growing at a rate of 150 students per year for the last 5-6 years, increasing from about 1000 to nearly 2000 students today. The district is having significant difficulties making space for new children that are coming into the system from new residential developments around CVNP (McGuire 2002).

Currently, 27 of the 54 residential properties (50 percent) have residential uses under park leases or other agreements (11) or remain private residences under retentions (10) or life estates (6). Structures used by the NPS are also occasionally used as residences (e.g., Gillette).

Based on a cursory review of rural landscape properties, an estimated 1 in 3 residential park properties currently include families with children, totaling approximately 12 children (an average of ~2 children per family). School-age children attend local schools, although some are known to attend private schools. The number of children residing in life estate or retention properties is unknown. Life estates usually have older residents that are not expected to often have school age children, but the renting of properties under retention is common and may include families. Fewer than 20 percent of proposals received for the Countryside Initiative Request for Proposals in 2001 included children, although that information was not specifically requested.

Table 3.6. School Districts in CVNP That May Be Affected by the Proposed Action

School District	Avg. Enrollment**	Avg. Spending/Student (%Locally Funded)**	Proposed Properties*	Potential as Farmsteads		
				H	L	N
Brecksville/Broad-view Heights SD	3,925	\$7,935 (80.4%)	5	2	2	1
Cuyahoga Heights SD	794	\$14,572 (90.9%)	3	2	1	
Independence SD	988	\$10,428 (82.4%)	2		1	1
Nordonia Hills SD	3,608	\$7,505 (71.4%)	2		2	
Revere SD	2,788	\$7,559 (79.1%)	2		2	
Woodridge SD	1,632	\$7,172 (77.9%)	40	16	23	1
Totals			54	20	31	3

* Only residential properties are counted; four barns are excluded.

** Average enrollment and costs are derived from Ohio Department of Education district profiles 1999-2000 (Ohio Department of Education 2001).

H = High; L = Low, N = No

3.5.5.3. Local Business and Economies

Business and residential development has expanded along the main north-south corridor just outside of the park since the park's creation. Concentrations of residential areas now abut the park in many areas. Small retail businesses that serve these communities (e.g., gas stations, restaurants, shops, grocery stores, etc.) are located along the many roads entering and leaving the park.

Small areas within the park remain developed for residential or retail business uses, including concentrations in Peninsula, Boston, and residences along Tinker's Creek Road. Other businesses (golf courses, ski areas, etc.) that thrive inside the park and provide recreational services are mentioned in the previous section.

As described in detail in Section 1.2.3, many farmers are still active in the park. These farmers provide a variety of vegetable, herb, poultry, Christmas trees, and pumpkins to the public. These operations include Crooked River Herb Farm, Heritage Farms, Carriage Trade Farms, Luther Farms, Swan Farm, and Szalay's Sweet Corn Farms, among others. Farms recently established under the Countryside Initiative pilot project will soon offer products generated from integrated crop/livestock operations and a vineyard. Farmers largely sell their products through roadside stands or shops and through local markets.

Many communities collect local income (payroll) tax, although not all communities (e.g. Boston Township, etc.) impose this tax (Table 3.5). Properties owned by the federal government are not subject to the payment of property tax.

However, the National Park Service has established mechanisms by which some form of compensation can be provided to the communities to help defray the costs of services to federal properties from which little or no tax revenue is generated.

Some fiscal mechanisms to address the absence of property tax have been put in place, including two types of Payments in Lieu of Taxes (PILOT). The first type is an annual payment made to local governments and school districts for 5 years after a tract of land is purchased by the federal government. There are some tracts of land that have been purchased by the federal government within the past 5 years, so some communities are still receiving PILOT. The second type of PILOT is an annual payment made to counties (Summit and Cuyahoga) on a 'per acre' basis. These payments are made forever, based on the availability of appropriated funds. Another mechanism is a 'retained interest tax' (Ohio Revised Code §5705.61) that is distributed to local governments and school districts just as property tax revenues. These taxes help to somewhat offset the net fiscal impact of CVNP. However, the retained interest tax does not apply if the lessee's purpose for using a government building is primarily to fulfill a government mission.

In terms of law enforcement, NPS rangers work cooperatively with the local police departments and in some cases have written agreements that outline the roles and responsibilities of each entity. The park has overlapping law enforcement jurisdictions with State and local law enforcement agencies. Residents, park visitors, and the park's resources benefit from cooperative law enforcement efforts by all agencies.

The NPS provides annual compensatory payments to the jurisdictions responsible for fire protection and emergency services for the suppression of all structural, grass, brush, and forest fires and non-fire and/or non-medical emergencies on NPS administered land. The NPS maintains a list of structures to be protected in each jurisdiction. Each jurisdiction is then reimbursed a certain amount (\$15-\$29) depending on whether the structure is "unoccupied", "occupied", or "NPS-utilized". Also, each jurisdiction receives \$100 for grass, brush, and forest fires and non-fire and/or non-medical emergencies, with additional amounts for each occurrence (NPS 2001d). Many of the structures that will be used in the new rural landscape management program are already protected by the local jurisdictions, but some that are now unoccupied may become occupied under the proposed action.

Road maintenance is the responsibility of the local jurisdiction, as the National Park Service does not own the roads. However, because of the increased use of roads due to park visitation, congressional authority was obtained in 1992 which allows CVNP to provide financial assistance, in the form of matching grants, to communities that apply for these grants. CVNP has a maximum amount of \$250,000 to distribute annually to communities whose road project grant applications indicate a mutual benefit to park visitors and the community.

The NPS has no authority to reimburse school districts for any costs associated with schooling the children of families occupying NPS-owned properties.

4. ENVIRONMENTAL CONSEQUENCES

The following chapter discusses the environmental impacts of each of the alternatives on the natural, cultural, and other resources of concern. The degree of impact was quantified in some cases, such as when a model was used or data were obtainable. However, often only qualitative descriptions of impact were possible. The following definitions were applied throughout this chapter, unless otherwise noted:

Impact Levels

Negligible: the impact is localized or at the lower levels of detection

Minor: the impact is localized or slight, but detectable and would not affect overall resources

Moderate: the impact is clearly detectable and could have an appreciable effect on overall resources; has the potential to become major

Major: the impact is highly noticeable and characterized as severe, or if beneficial, has exceptional beneficial effects

Duration

Duration refers to the time period over which the effects of an impact persist. Most impacts in this document were considered to be permanent qualitative shifts in resource values. For impacts that required a more definable time frame for emphasis or clarity, the duration of impacts across all categories were determined using the following definitions:

Short-term: the impacts last for less than 2 years, often quite less

Long-term: the impacts last for more than 2 years

Additionally, unless otherwise stated, all analyses were performed by assessing the final state of the alternatives rather than the incremental nature of each alternative. Similarly, analyses largely focused on the management emphasis as described for each alternative in Chapter 2 since these would likely include the greatest impacts. Impacts related to other less-used management methods were generally considered negligible in comparison to the emphasized methods.

4.1. IMPACTS ON CULTURAL RESOURCES

4.1.1. *Regulations and Policies*

National Park Service guidelines for cultural resource management are derived from a series of laws, regulations, and policies. Of particular importance is the enabling legislation establishing each park for a specific purpose. As previously stated in this document, CVNP was created by Congress in 1974 as Cuyahoga Valley National Recreation Area for the purpose of “preserving and protecting for public use and enjoyment, the historic, scenic, natural, and recreational values” of the Cuyahoga Valley (Public Law 93-555, 1974). Cultural Resource management at CVNP primarily concentrates on the preservation and protection of historic and scenic values of which the rural landscape is part.

Other laws, regulations, and policies have general application for cultural resource management throughout the NPS. These include the Antiquities Act, the Historic Sites Act, the National Historic Preservation Act, the National Environmental Policy Act, the Archeological and Historic Preservation Act, the Archeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. The following is a brief description of each act:

Antiquities Act (1906): provided for the protection of historic, prehistoric, and scientific features on federal lands.

Historic Sites Act (1935): declared it a national policy to preserve historic sites, buildings, and objects for public use and authorized the NPS to restore, reconstruct, rehabilitate, preserve, and maintain historic and prehistoric sites, buildings, objects, and properties of national historic or archeological significance.

National Historic Preservation Act (1966): declared historic preservation as a national policy and authorized the Secretary of the Interior to expand and maintain a National Register of Historic Places that would include properties of national, state, and local historic significance.

Archeological and Historic Preservation Act (1974): provided for the preservation of significant scientific, prehistoric, historic, and archeological materials and data that might be lost or destroyed as a result of federally sponsored projects.

Archeological Resources Protection Act (1979): defined archeological resources as any material remains of past human life or activities that are of archeological interest or at least 100 years old and provided for preservation and custody of excavated materials, records, and data.

Native American Graves Protection and Repatriation Act (1990): assigned ownership or control of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are excavated or discovered on

federal lands or tribal lands to the lineal descendants or affiliated Indian tribes or Native Hawaiian organizations.

Protection of cultural resources is also in accordance with Executive Order 11593, *Protection and Enhancement of the Cultural Environment*, 1971. EO 11593 instructs all federal agencies to support the preservation of cultural properties and directs them to identify and nominate cultural properties under their jurisdiction to the National Register of Historic Places.

Cultural resource management procedures are detailed in the NPS *Management Policies* (NPS 2001e) and the *NPS Cultural Resource Management Guideline* (NPS 1997a). Specific standards and guidelines for the treatment of cultural resources are provided in The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, and Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes.

4.1.2. Methodology

4.1.2.1. Archeology

The analysis of impacts on archeological resources is a qualitative assessment based on a review of existing park policies on the treatment of archeological resources, existing park data on archeological resources, and consultation with NPS archeologists.

Potential impacts on archeological resources may occur from any undertaking that includes any project, activity, or program that will cause ground disturbance. As such activities as cultivation, compaction, erosion, building construction, utility installation, and fence installation are expected, archeologists will conduct preliminary inventories as part of the planning process to minimize adverse impacts on resources. Inventory methods typically include pedestrian surface survey, shovel testing, and geophysical survey. Small-scale evaluative test excavations usually follow. These inventories may lead to the discovery of a site or to the confirmation that no archeological resources exist in a specified location. When a site is discovered, the revealed resources will be evaluated under National Register standards and measures to lessen impacts will be recommended and employed such as site avoidance, project redesign, or other site protection measures.

Impacts on archeological resources will be analyzed by comparing how much ground disturbance is proposed in each alternative, as this ground disturbance presents risks to yet undiscovered archaeological resources.

4.1.2.2. Historic Structures

The analysis of impacts on historic structures is a qualitative assessment based on a review of existing park policies on the treatment of historic structures, existing park data on historic structures, and consultation with the park historian and historical architect.

Potential impacts on historic structures may occur from any undertaking that includes any project, activity, or program that can result in changes in the character or use of a structure. Maintaining the historic character and slowing the rate at which historic material is lost are the two main goals for historic structure preservation. In particular, the compatibility of use and continued preservation maintenance are primary concerns. Thus, impacts on historic structures will be analyzed among the alternatives by comparing the compatibility of use in terms of portraying the historic rural character and the long-term preservation potential in terms of the likelihood of preserving the structure and protecting historic material over time.

In general, it is assumed that the historic character of a structure is best portrayed when the historically significant physical attributes of the structure as well as the traditional use of the structure are both retained. Although rehabilitation as a preservation method allows for contemporary non-agricultural uses to be acceptable, the most compatible uses are those that also portray an agricultural function since this was the traditional use.

It is also assumed that in terms of long-term preservation potential, the likelihood of preserving a structure and protecting its historic material over time is improved through the utilization of the structure. By utilizing a structure, the rate of deterioration to historic materials from natural processes is slowed. Utilization has also proven to deter vandals, which protects structures from unexpected destruction. Regular maintenance schedules also accompany utilized structures. When structures are directly maintained by the NPS, it is generally ensured that preservation standards are followed. When others maintain structures, such as lessees, protection and preservation occurs through restrictive guidelines and immediate involvement of NPS expert personnel. In these cases, the NPS assumes a small, added degree of risk to structures.

4.1.2.3. Cultural Landscapes

The analysis of impacts on the rural landscape is a qualitative assessment based on a review of existing park policies on the treatment of cultural landscapes, existing park data on cultural landscapes, and consultation with the park historian and historical landscape architect.

Potential impacts on the rural landscape may occur from any undertaking that includes any project, activity, or program that can result in changes in the character or use. Protecting and preserving the historic character of the landscape is the primary goal for

cultural landscape management. Thus, the primary goal in this EIS is to preserve the rural landscape by protecting and preserving the historic rural character of the landscape.

At both the park-wide scale and the farm scale, impacts will be analyzed by comparing each alternative's ability to portray the historic rural character of the landscape. In general, the historic character of a landscape is defined by its function, visual quality, spatial organization, land use patterns, and character-defining features. In turn, it is assumed that the historic character of a landscape is more accurately portrayed when the greatest number of the above criteria are met and a living, working rural landscape is portrayed through function as well as aesthetics.

4.1.3. Impacts Common To All Alternatives

Cultural Resources. For all alternatives, various impacts to Cultural Resources are specifically evaluated in the Alternative sections. However, in general, for all action alternatives (Alternatives 2, 3, & 4), no major adverse impacts on cultural resources are expected, as site level compliance will be conducted for NEPA and Section 106 of the National Historic Preservation Act. Preliminary project inventories and evaluations will be completed and resources evaluated under National Register criteria. For historic structures and cultural landscapes, The Secretary of the Interior's Standards for rehabilitation will be followed to ensure that the integrity and character of a historic structure is maintained and that the historic character of the landscape is retained. For archeological resources, the evaluation of sites would not minimize impacts, but would instead provide data to be used in site avoidance, project redesign, and site protection – efforts that might reduce and/or lessen project impacts. If impacts were to occur to any cultural resource, mitigation measures would be implemented.

As guided by National Register criteria and the Cultural Resources Management Guideline (NPS 1997a), mitigation measures for cultural resources would be implemented when it is not possible to protect archeological resources, historic structures, and cultural landscapes and an adverse impact is expected. Mitigation measures typically consist of data recovery and detailed recording. Data recovery projects will be designed in consultation with the State Historic Preservation Office and will conform to NPS and professional standards. Archeological data recovery projects, in particular, will include a written Mitigation Plan and Memorandum of Agreement between the park and the State Historic Preservation Office. This agreement will then be filed with the Advisory Council on Historic Preservation.

Archeological Resources. It is expected that the uncovering of archeological resources from project inventory efforts conducted because of proposed ground disturbance activities will have secondary moderate beneficial impacts on the knowledge base of the history and prehistory of the park. Since CVNP conducts archeological survey work in conjunction with projects proposing ground disturbance activities, these project inventories are useful means, although not the only means, of gathering new archeological data for research purposes. It is anticipated that Alternatives 1, 2, and 4 will have the greatest amount of proposed ground disturbance activities and thus, have

the most archaeological survey work conducted. Archeological resources may also be made temporarily inaccessible by paving actions should they occur. This impact is considered negligible as the resources may still be recovered intact at a later date.

For all alternatives, it is also expected that actively cultivated areas, including those that have experienced recent disturbance, are susceptible to cumulative long-term impacts from surface exposure of artifacts. Exposed artifacts are subject to continued weathering, cultivation damage, and unauthorized collecting. In addition, as soil continues to erode from cultivated fields, the plow zone moves down, disturbing new soil and potentially damaging archeological resources including occupational features such as hearths or storage pits that had previously been beneath the plow zone.

Structural Damages. Damage to structural resources by users may occur on a small scale over time. In particular, a higher risk is assumed when non-park users, such as lessees, are the primary users. Nonetheless, no adverse impacts on the historic character or the long-term preservation potential are expected, however, as most damage will likely be very minor and reversible through repairs.

National Historic Landmark. Negligible impacts on the National Historic Landmark property are expected to occur as the adjacent fields have continued to be actively maintained through mowing or farmed through the years. In addition, although within proximity, the farm property is well segregated from the National Historic Landmark property by the road and hillside with views to the back property being screened by vegetation.

Other Historical Themes. A small number of rural landscape elements may have been identified in the 1987 CLR as contributing primarily to other historical themes (e.g., Settlement or Transportation). Such elements are considered to contribute secondarily to the Agriculture theme. Few if any adverse impacts on these resources in terms of their primary theme are expected, and any such impacts are considered to be negligible.

Ohio & Erie Canal National Heritage Corridor. The proposed action will affect resources located within the National Heritage Corridor. However, since the amount of total land affected by this project is very small in scope relative to the 110-mile long Corridor, any impacts are expected to be negligible.

CanalWay Scenic Byway. The proposed action will affect resources located along the Scenic Byway. However, since the amount of total area affected by this project is very small in scope relative to the 110-mile long Byway, any impacts are expected to be negligible.

None of the impacts common to all alternatives are expected to lead to an impairment of the cultural resources of Cuyahoga Valley National Park.

4.1.4 Cumulative Impacts Common To All Alternatives

The rural landscape of CVNP is representative of the agricultural heritage of the Northeast Ohio region as well as the development of farming in America. The cultural resources associated with the rural landscape are, in turn, also important on a regional and national scale. As development occurs in surrounding areas and throughout the country, more and more historic farm structures and farm fields are being lost. With this loss of open space, the archeological research potential in CVNP becomes relatively more significant as does the preservation of farm structures and farm fields which also serve to preserve and perpetuate a piece of regional and national history. Because of this relationship, any beneficial or adverse impacts on the rural landscape and its components in CVNP become relatively more important.

4.1.4. Impacts of Alternative 1 – No Action

4.1.4.1.Archeology

Under this alternative, conventional cultivation methods by SUP farmers will continue. Tilling turns up the soil and can impact archeological resources through equipment damage and surface exposure. Exposure, in particular, is a concern as it opens the resources to weathering, unauthorized collecting, and increased erosion. In addition, conventional cultivation methods do not typically include the use of cover crops in between harvest and spring planting to cover and stabilize soils, further increasing exposure impacts. As these conventional cultivation methods are expected to continue over time, repeated disturbances and impacts are also likely. Thus, moderate adverse impacts on archeological resources are expected. In turn, impacts from tilling are probably greater for lands that are not currently cultivated since resources in actively farmed areas have recently experienced disturbance and impacts from erosion are probably greater for fields that are located in sloped areas. Livestock grazing levels are expected to remain low under this alternative, so adverse impacts from compaction and erosion caused by grazing are expected to be negligible to minor. Should livestock uses unexpectedly increase under SUPs, related impacts could increase.

Little new construction in the form of structures or fencing is foreseen under this alternative. Therefore, only negligible impacts on archeological resources are expected from these activities. The high level of park utilization of existing structures and long-term leases expected in this alternative will lead to the installation of new utilities as part of upgrading facilities. Line trenching and other excavations are likely to occur. Minor to moderate adverse impacts from these ground disturbing activities are anticipated.

4.1.4.2.Historic Structures

Rehabilitation for compatible uses for park operations and long-term leases has a moderate beneficial effect on the historic character of structures as the historic character

is retained through preservation of significant physical attributes. However, traditional agricultural use will usually be absent, which lessens the degree of the historic character portrayed.

Major beneficial effects on long-term preservation potential of structures are expected when they are readily rehabilitated and put into use for park operations or long-term leases.

However, beneficial effects on historic character and long-term preservation potential under this alternative are highly dependent on the rate at which the structures are actually rehabilitated and put into use. As past history in the park has demonstrated, the opportunistic approach is accompanied by a risk of adverse impact on structural resources. Without a comprehensive plan to guide utilization, many structures may lie vacant for relatively long periods of time awaiting a use to arise.

Outbuildings are particularly at risk because it is often difficult to work them into park use or long-term leases without an agricultural use. When they are designated for use, it is often for compatible, but non-agricultural uses that require additional utilities and interior and exterior changes (e.g., use of barns as a conference site or event hall).

Efforts would always be taken to implement interim stabilization measures to prevent the total loss of a structure. However, a structure in an unused state is at higher risk of deterioration and destruction from natural processes and human factors such as vandalism. As a result, the historic integrity of a structure is often decreased through the loss of character defining features. In addition, when rehabilitation is eventually initiated, it is often more difficult from a construction standpoint, as well as more costly. This delay or lack of active use may result in minor to moderate adverse impacts on the historic character and long-term preservation potential of affected structures.

4.1.4.3. Cultural Landscapes

When proposed agricultural fields are used for agricultural purposes, major beneficial effects to the historic rural character are expected at the farm level as well as the park-wide level. The activity of agriculture in the fields benefits the rural character of the landscape since it not only maintains land use patterns, spatial relationships, character-defining features and the visual appearance of the rural landscape, but it is also a continuation of the historic use.

Most associated curtilage lands will likely be used with existing structures for compatible uses that are not agricultural in nature or associated with the fields. Since the historic use, as well as the historic working association between the lands and structures is missing, the historic character of the farm landscape and the park-wide landscape is decreased. Nevertheless, maintaining a rural appearance, spatial relationships, character-defining features, and land use patterns will have moderate beneficial effects on the rural character of the farm and park rural landscapes.

However, as with historic structures, delays in utilization under the opportunistic approach of this alternative are expected to diminish these benefits to the cultural landscape. As past history in the park has demonstrated, fields that remain unused are likely to succumb to natural succession and eventually are lost to woodlands over time. Field delineations, spatial relationships, and land use patterns are compromised at a minimum, and often completely lost. Major adverse impacts on the historic character of the rural landscape are expected at the farm level, but on the park scale, the adverse impact on the rural character is expected to be only minor to moderate, depending on the number of acres and fields lost. Thus, as more acreage and fields are lost, greater adverse impacts on the overall character of the rural landscape occur.

In the past, curtilage lands around unused structures have also been neglected or minimally maintained due to scheduling limitations. As a result, minor to moderate adverse impacts are expected to the historic rural character of the landscape at the farm scale and the park scale depending on the amount of overgrown land and the degree to which the views of the farmstead, circulation patterns, small scale features, and planted vegetation are lost.

Additionally, unused structures are expected to have minor to moderate adverse impacts on the historic character of the landscape at the park-wide and farm levels as the structures are at risk of physical deterioration or destruction. Of greatest concern to the landscape is the loss of character-defining external features of structures. The more the external façade of a structure deteriorates and the more structures that deteriorate, the greater the adverse impacts on the rural character of the landscape at both scales.

Little new construction is expected in the form of structures or fences under this alternative. Thus, little or no change in land use patterns, spatial relationships, or visual appearances are likely to occur and negligible impacts on the historic character of the rural landscape at the farm and park scale are expected.

4.1.4.4.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.1.4.5.Conclusion

Conventional cultivation methods would have moderate and continuing adverse impacts on archeological resources under this alternative, while conventional grazing would have negative to minor adverse impacts. Ground disturbance activities related to utility installation are expected to have minor to moderate adverse impacts on archeological resources. Little new construction is foreseen under this alternative. Negligible impacts

on archeological resources from new construction or fencing are expected from these activities.

Moderate beneficial effects on the historic character and major benefits on the long-term preservation potential of structures in the park are expected under this alternative from active park use and long-term leasing. However, if there are delays in putting structures into active use, minor to moderate adverse impacts on historical character and long-term preservation potential may occur.

Major beneficial effects to the rural character of the landscape are expected as fields are used for agricultural purposes. Should the loss of agricultural fields to succession occur, it would be a major adverse impact on the historic character of the rural landscape at the farm level and a minor to moderate adverse impact for the park landscape.

Moderate beneficial effects on the rural character of the farm and park rural landscapes are expected when curtilage lands are used with existing structures for compatible uses that are not agricultural in nature or associated with the fields. When curtilage lands are neglected or minimally maintained in association with unused structures, however, minor to moderate adverse effects on the historic rural character of the landscape at the farm and park scales are expected.

The implementation of this alternative is not expected to lead to an impairment of the cultural resources of Cuyahoga Valley National Park.

4.1.5. Impacts of Alternative 2 – Countryside Initiative (Preferred Alternative)

4.1.5.1. Archeology

Under this alternative, sustainable practices often include no-till cultivation practices such as frost-crack seeding or chisel plowing as well as the use of cover crops to cover and stabilize soils after harvest. No-till practices will reduce the amount of tilling and therefore, the potential impacts to archeological resources from equipment damage and surface exposure will also be reduced. Cover crops will help reduce surface exposure of artifacts and, in turn, reduce impacts from weathering, unauthorized collecting, and erosion. In addition, the routine presence of on-site farmers is likely to discourage unauthorized collecting as well. Thus, negligible to minor adverse impacts on archeological resources are expected. Livestock grazing will be primarily rotational, which protects the ground from becoming overly compacted and decreases erosion potential. Thus, even though it is likely that more long-term lease farmers will graze livestock, rotational methods will minimize the impacts on archeological resources and adverse impacts are expected to be negligible to minor.

The moderate amounts of new structures expected under this alternative will typically be installed with foundations or footers that require excavation. Moderate adverse impacts on archeological resources are expected from this activity. Additionally, a large amount of new fencing will likely be installed throughout the rural landscape in order to promote

profitable farming in this alternative. Fencing will be utilized to protect crops from wildlife as well as to keep livestock pastured. Although the size of individual excavations is small, the total number of fence posts is expected to be high and the fence posts are expected to be distributed broadly across the park. Thus, the large amount of new fencing is expected to have moderate adverse impacts on archeological resources.

Existing structures will be primarily managed through long-term leasing. In order to make these structures function for full-occupancy, it is expected that new utilities will be installed to upgrade facilities. Thus, the adverse impact on archeological resources from line trenching and other utility excavations is expected to be moderate.

4.1.5.2. Historic Structures

The rehabilitation and long-term leasing of many associated historic structures will provide for compatible contemporary use of the structures as they relate to a modern agricultural lifestyle. Major beneficial effects to the historic rural character of structures are expected, as not only will the significant physical elements of a structure be retained, but the agricultural use will also be reestablished through modern sustainable practices.

A comprehensive plan for the utilization of structures accompanies this alternative, thus it is expected that rehabilitation and the full use of entire structures through long-term leases will be readily implemented. In turn, major beneficial effects to the long-term preservation potential of historic structures are anticipated as continuous full-occupancy and regular maintenance is expected to occur.

4.1.5.3. Cultural Landscapes

Under this alternative, joint agricultural use will reestablish functional unity of farmsteads and associated lands. Structures as well as the surrounding curtilage and associated fields will have an agricultural purpose. This will have major beneficial effects on the historic character of the rural landscape at both the farm and the park scale. The rural appearance is maintained and the historic uses are retained.

New structures are expected to have negligible impacts on the historic character of single farm landscapes as well as the park-wide rural landscape. While the addition of new structures will inevitably alter historic spatial relationships, land use patterns, and the visual appearance of the farmstead curtilage, contemporary structures and fencing will undergo site-level NEPA and Section 106 compliance. These compliance efforts will ensure that they are designed to be modern but compatible to the rural landscape to ensure that they do not detract from the historic character of the site.

It is expected that relatively large amounts of new fencing will be installed, covering a substantial amount of the fields designated for agricultural purposes, most of which are currently not fenced but were likely fenced at one point in time. New fencing will be modern but compatible in design and it is proposed that new fencing patterns will follow

historic fencing patterns when possible. However, to meet modern functional needs, new fencing patterns may be implemented which would alter historic land use patterns and spatial relationships of the landscape. At the same time, new fencing will reestablish an important missing character-defining feature of the traditional rural landscape. Thus, in consideration of all the above issues, new fencing is expected to have moderate beneficial effects on the historic character of the rural landscape at the farm and park scales.

4.1.5.4.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.1.5.5.Conclusion

Negligible to minor impacts on archeological resources are expected from agricultural activities. These impacts are less than Alternative 1 due to the use of sustainable practices and the routine presence of on-site farmers. The moderate amounts of new structures and a large amount of new fencing will have moderate adverse impacts on archeological resources. Utility installation is expected to cause moderate adverse impacts on archeological resources. Adverse impacts on archeological resources from new construction activities are expected to be greatest under this alternative.

Major beneficial effects to the historic character of structures are expected as significant physical attributes and historic agricultural uses are retained. This alternative is expected to have the most compatible use of any alternative in terms of most fully preserving the historic rural character. Major beneficial effects on the long-term preservation potential of historic structures from continuous full-occupancy and regular maintenance are also expected.

Major beneficial effects are expected to the historic character of the rural landscape at a farm scale as well as the park scale due to the joint agricultural use of lands and structures. This alternative best preserves the rural character compared to the other alternatives.

Negligible adverse impacts are expected from new construction at both the farm and park landscapes scales. The large amount of new fencing is expected to have moderate beneficial effects on the historic character of the rural landscape at the farm and park scales.

The implementation of this alternative is not expected to lead to an impairment of the cultural resources of Cuyahoga Valley National Park.

4.1.6. *Impacts of Alternative 3 – Vista Management*

4.1.6.1. Archeology

Little farming is expected to occur although it is assumed it would be primarily conventional when it occurs. Impacts on archeological resources from such a small amount of conventional cultivation and grazing are expected to be negligible. Mowing to maintain open fields or for wildlife habitat does not typically create any ground disturbance so no impacts are expected.

Little or no new structures or fencing are likely to be constructed under this alternative as the emphasis is on utilizing existing structures. In turn, negligible to minor adverse impacts on archeological resources is expected.

Very little utility installation is expected in association with the use of structures as scene-setters. Occasional utility installation may occur in relation to park used or leased structures. Therefore, adverse impacts on archeological resources are expected to be negligible to minor.

4.1.6.2. Historic Structures

Rehabilitation of structures as scene-setters implies that the concentration is on the exterior façades with interiors being only minimally retained. Preservation of the exteriors will result in moderate beneficial effects to the historic character of structures. Park-used structures also have a moderate beneficial effect on the historic character of structures as the historic character is retained through the physical components.

The use of historic structures as scene-setters will have moderate beneficial effects on their long-term preservation. Regular preservation maintenance will be implemented by the NPS with a concentration on exterior elements. Interior elements, however, will be secondary in importance and may be jeopardized. In addition, the structures will be vacant and the risk of vandalism is expected to be relatively high. Major beneficial effects on long-term preservation are expected for structures used for park operations from the full use and regular maintenance of the entire structure.

4.1.6.3. Cultural Landscapes

Mowing to maintain open fields promotes the rural character of the rural landscape despite its lack of agricultural activity. Land use patterns, spatial relationships, and fields as character-defining features are retained to promote a rural appearance and, in turn, the rural character of the landscape is portrayed. Thus, this land use will have only a minor beneficial effect on the rural character of the landscape at the farm and park-wide scales since the historic activity is absent.

Existing structures would mostly be used as scene-setters or for park operations. Scene-setters focus on the role of a structure as a character-defining feature in the rural setting. Any functional use is omitted although the structure helps retain the rural landscape's spatial organization, land use patterns, and visual qualities. Slightly more beneficial effects on structures used for park operations are expected, as they will be accompanied by a compatible use. Structures under both of these uses will have a moderate beneficial effect on the rural character of the landscape at a farm and park scale.

The curtilage around scene-setters and structures used for park operations would be mowed to maintain open space patterns and exhibit small scale features and planted vegetation. An agricultural function would be absent, however. Thus, the benefits to the rural landscape character are expected to be moderate at both the farm and park levels.

As in Alternative 1, little new construction is expected in the form of structures or fences under this alternative. Thus, no change in land use patterns, spatial relationships, or visual appearances are likely to occur and negligible impacts on the historic character of the rural landscape at the farm and park scale are expected.

4.1.6.4.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.1.6.5.Conclusion

Impacts on archeological resources from these activities are expected to be negligible to minor due to limited agricultural uses and little or no new construction. Occasional utility installation may occur with negligible to minor adverse impacts on archeological resources. In comparison to the other alternatives, this alternative is expected to have the least adverse impact on archeological resources.

Moderate beneficial effects to the historic character of structures used as scene-setters are expected as exterior façades are protected, but interior elements may be at risk. Structures used for park operations will also have moderate beneficial effects on the historic character of a structure. The historic character of structures is not portrayed as well as in Alternative 2, since historical uses are absent.

The use of most historic structures as scene-setters will have moderate beneficial effects on their long-term preservation potential. In some cases where structures are in full active use, major beneficial effects on long-term preservation potential are expected for structures from the full use and regular maintenance of the entire structure. Therefore, the beneficial effects on the long-term preservation potential of historic structures as an entire resource is less than Alternative 2, but greater than Alternative 1.

The mowing of fields has a minor beneficial effect on the rural character of the landscape. The mowing of curtilage lands and the use of structures, whether as scene-setters or for park operations, will have a moderate beneficial effect on the rural character of the landscape at a farm and park scale. This alternative portrays the least amount of historic rural character of any alternative due to limited compatible and historical uses.

The implementation of this alternative is not expected to lead to an impairment of the cultural resources of Cuyahoga Valley National Park.

4.1.7. Impacts of Alternative 4 – NPS Farming

4.1.7.1. Archeology

As in Alternative 1, moderate adverse impacts on archeological resources are expected from equipment damage and surface exposure caused by conventional cultivation. Adverse impacts from compaction and erosion caused by grazing are expected to be negligible to minor as livestock grazing levels are expected to be low under this alternative. Should livestock uses unexpectedly increase, related impacts could increase.

As in Alternatives 1 and 3, very little new construction and utility installation is expected under this alternative. Adverse impacts on archeological resources from these activities are expected to be negligible to minor.

4.1.7.2. Historic Structures

For the same reasons as stated in Alternative 3, structures used as scene-setters are expected to have moderate beneficial effects on the historic character of structures. Structures used for NPS farming activities, however, will have major beneficial effects on the historic character of structures as full agricultural use will be implemented.

It is expected that scene-setter use will have moderate beneficial effects on the long-term preservation potential of historic structures as in Alternative 3. Structures used for NPS farming are expected to have major beneficial effects on the long-term preservation potential.

4.1.7.3. Cultural Landscapes

As in Alternative 1, lands already used for agricultural activities, will have major beneficial effects to the rural character at the farm and park levels.

Structures used as scene-setters will have moderate beneficial effects on the rural character of the landscape at the farm and park levels as in Alternative 3. Similarly, the associated mowed curtilage will also have moderate beneficial effects. When structures are used to support NPS farming activities, however, moderate beneficial effects on the

rural character are expected at both levels. However, the structures used for NPS farming will primarily be barns or other outbuildings. It is not likely that all structures that compose a farmstead will be used so these benefits are less than in Alternative 2.

When structures are used to support NPS farming activities, it is also assumed that at least some portion of the surrounding curtilage will be used to support farming as well. Thus, moderate beneficial effects on the rural character of the landscape are also expected at the farm and park scales.

As in Alternatives 1 and 3, the limited new construction will result in negligible impacts on the historic character of the rural landscape at the farm and park scale.

4.1.7.4.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.1.7.5.Conclusion

Adverse impacts on archeological resources from tilling are expected to be moderate in this alternative. This alternative will have the greatest amount of adverse impacts on archeological resources due to the increased amount of conventional farming. As in Alternatives 1 and 3, little or no new construction and even less utility construction is expected under this alternative so resulting impacts on archeological resources would be negligible.

Impacts on historical structures are similar to Alternative 3. The use of structures for NPS farming purposes, however, is expected to have additional major beneficial effects on historic character. More structures are in a highly compatible use in terms of historic character than Alternatives 1 and 3, but less than in Alternative 2.

This alternative is expected to have a greater overall benefit to the long-term preservation potential of historic structures as an entire resource than Alternatives 1 and 3, but less than Alternative 2 since many structures will not be in full use.

Major beneficial effects to the rural character of the landscape at a farm and park-wide scale are expected from agricultural activities occurring in the fields. The agricultural activities, use of structures, and some connected uses of lands with structures will result in moderate beneficial effects. This alternative portrays rural character of the landscape better than Alternative 3, where agricultural use is absent, but less than in Alternative 2 because entire farms are not functionally united for agricultural purposes and many structures are used for scene-setter purposes.

The implementation of this alternative is not expected to lead to an impairment of the cultural resources of Cuyahoga Valley National Park.

4.1.8. Irreversible or Irretrievable Commitments of Resources

Some irretrievable loss of *in situ* archeological resources through ground disturbing activities is expected to occur under any of the alternatives. However, since site level NEPA and historic preservation compliance will be conducted it is expected that losses would be minimized. Discovered resources would be collected, evaluated, and recorded using National Register criteria. Research potential is high as well as use for park interpretation programs and public enjoyment.

If structures are not readily put into active use (especially in Alternative 1), it is possible that historic structures may experience irretrievable losses to significant character defining features from deterioration or destruction from natural processes or human factors such as vandalism. Such losses may similarly affect cultural landscapes to which these structures contribute.

Similarly, in all alternatives (especially Alternatives 3 and 4) when structures are used as scene-setters, it is possible that significant character defining features of interior elements will be irretrievably lost.

4.1.9. Loss In Long-Term Availability or Productivity of the Resource to Achieve Short-Term Gain

There is an anticipated loss in the long-term availability of *in situ* archeological resources from the ground disturbing activities expected to occur under any alternative. These impacts are largely minimized because discovered resources would be collected, evaluated, and recorded using National Register criteria. Thus, the resources would potentially exist *ex situ* for perpetuity contributing to research, park interpretation programs and public enjoyment. Known archeological resources that remain in their place of origin would be avoided or protected. Where this is not possible, mitigation measures will be implemented.

In Alternative 1, there is a risk of loss in the long-term availability of fields as rural landscape elements if they are not maintained and succession is allowed to occur. It is unlikely that such fields would actively be reclaimed.

4.1.10. Unavoidable Adverse Impacts

Unavoidable minor to moderate adverse impacts on archeological resources are expected to occur from certain ground disturbing activities under all alternatives. Such impacts will be minimized and largely mitigated through site level NEPA and NHPA compliance. As guided by National Register criteria and Cultural Resources Management Guideline (NPS

1997a), mitigation measures for cultural resources would be implemented when it is not possible to protect known archeological resources, historic structures, and cultural landscapes and an adverse impact is expected. Mitigation measures typically consist of data recovery and detailed recording. Data recovery projects will be designed in consultation with the State Historic Preservation Office and will conform to NPS and professional standards.

4.2. IMPACTS ON VEGETATION

This section of the EIS analyzes the potential impacts associated with each of the alternatives with regard to the vegetation growing in the proposed fields and the adjacent forested areas which could be affected by the management of the fields.

4.2.1. *Regulations and Policies*

NPS *Management Policies* (NPS 2001e; Section 4.4.2.1) provides guidance on the removal of plants from parks. It states that when the NPS allows the removal of plants for any authorized action, the NPS will seek to "ensure that such removals will not cause unacceptable impacts on native resources, natural processes, or other park resources". Additionally, the NPS "will manage such removals to prevent them from interfering broadly with: Natural habitats, natural abundances, and natural distributions of native species and natural processes; Rare, threatened, and endangered plant or animal species or their critical habitats; Scientific study, interpretation, environmental education, appreciation of wildlife, or other public benefits; Opportunities to restore depressed populations of native species; or Breeding or spawning grounds of native species".

Executive Order 13112 requires that federal agencies act to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

4.2.2. *Methodology*

A qualitative assessment of impacts on terrestrial vegetation was conducted based on literature review, site inspection, geographic information system (GIS) analysis, and existing natural resources data. No original data collection was undertaken in connection with this portion of this draft EIS. Impacts on aquatic vegetation are analyzed along with water resources in Section 4.4.

In evaluating the impacts on terrestrial vegetation, several topics related to potential impacts were considered: endangered plants and critical habitat, loss of native vegetation, invasive plants and hybridization, arrested succession and removal of habitat, edge effects, and fragmentation. Because the impacts of the proposed alternatives are incremental over a 10-year period, it is difficult to quantify impacts at each increment of the program. Thus, impacts were analyzed in terms of total anticipated changes from existing conditions after 10 years.

The level of impact for each of these topics is directly related to the type of management undertaken under each alternative. Management activities that involve soil disturbance increase the possibility of spreading invasive plants. Crop operations, which involve plant species that may hybridize with native plant species, will increase potential impacts due to hybridization. Activities that include the use of pesticides or organic or chemical

fertilizers will have greater impacts on the surrounding vegetation. Management activities that include livestock will have potential vegetation impacts due to grazing and trampling, which includes increased spread of invasive plants, while those that do not include as much livestock will have less potential for this type of impact.

It is acknowledged that the project area includes fields in a continuum of successional stages. For the purpose of this analysis, these were generalized into two broad groups. It was assumed that currently unmanaged fields that had been recently farmed or are currently grassy with little woody vegetation would be impacted similarly to currently managed fields. All are therefore discussed as “open fields”. The “older fields” that have proceeded further into succession would experience a broader range and intensity of impacts.

4.2.3. *Impacts Common to All Alternatives*

Threatened and Endangered Plant Species. Before active management is initiated on any field, field visits will be conducted which will include screening for the presence of rare plants. If rare plants are found in any field during that review, appropriate steps will be taken to ensure protection of the rare plant population.

No federally-listed endangered or threatened plant species are known to exist within the park and no Critical Habitat has been designated. Northern monkshood (*Aconitum noveboracense*) has not been found within the park and is unlikely to be associated with agricultural fields. Hence, no impact on federally-listed plant species is expected.

With one exception, no plants listed by the State of Ohio as potentially threatened, threatened, or endangered are known to occur within the proposed agricultural lands. There is one field that is adjacent to a small population of the potentially threatened species, butternut (*Juglans cinerea*), which could be adversely impacted by plowing within the root zone or by physical damage from farm machinery or animals. Should this field be used, the root zone of the trees would not be plowed, and the trees would be protected from livestock by fencing. Therefore, no impacts on Ohio-listed rare plant species are expected.

Loss of Native Vegetation. Since the proposed agricultural land identified in this document will be managed to preserve the rural landscape, the natural vegetation will be impacted on that land. The “open fields” (1,083 acres) are in many cases already in altered states of succession. The “older fields” (262 acres) will generally be cleared of their successional plants, and thereafter will be managed to prevent succession, either by mowing or farming. The impact of management will be that most native plant growth will be destroyed or altered towards a monoculture of grasses or some crop mix.

The adverse impact on the actual native vegetation within the proposed fields will be major, as most or all populations of native vegetation in these fields will be lost or altered. However, the removal of the vegetation in these areas will be a minor impact on

the park's overall vegetation when considered at the park-wide scale, due to the small amount of acreage affected.

Plant Hybridization. Crops and domestic plants may interbreed with the native flora. In general, common agricultural crops such as fruit, vegetables, and herbs may be grown, along with more invasive crops. However, the particular crops that will be grown on each of the farmsteads are not currently known. In general, the common crops pose little risk of hybridization with native plants. Given that all crops that may be grown are carefully evaluated for potential to hybridize before they are introduced into the park, risks of invasive species introductions are considered minimal. Overall, the anticipated adverse impacts are considered minor.

Arresting Succession. All alternatives have the potential to broadly interfere with the natural process of succession of plant communities from field to forest. This is slightly less likely under Alternative 1 because some fields are likely to undergo succession before being managed. In the absence of management, all fields in the park would be expected to undergo succession and become forests. However, this natural elimination of all early successional habitats ("older fields") would take decades. Any of the alternatives under the proposed action would accelerate the elimination of early successional habitats and shrubby areas.

The impacts associated with arresting succession include alteration of soil chemistry and plant communities, both through the loss of native vegetation and through increased light, heat, and wind exposure that decreases the moisture content of the soil for many years. Moisture changes affect other chemical and physical attributes of the soil. After farming for an extended period of time, succession may not proceed as rapidly, or in the same direction as it would have in the absence of farming. While many fields already face this impact from previous uses, all alternatives propose to expand these impacts on other areas that have been recovering from past uses for up to 15 years.

These adverse impacts of all alternatives on the process of succession are expected to be minor to moderate, spatially broad, and long-term. The level of impact is somewhat lessened by the fact that these impacts on successional processes can be temporary if rural landscape management would cease. However, the effects of arresting the process of succession are long-term impacts because they will continue for a significant period of time after management ends.

Edge Effects and Fragmentation. The impacts of habitat fragmentation and increased edge effects on biodiversity are well documented (e.g., see summaries in Meffe and Carroll 1994). Such impacts are expected on native vegetation under the proposed action. When fields are cleared, the boundary between the field and the adjacent forested area become more distinct, allowing for changes in the physical and ecological attributes of those edge areas. The permanent clearing of fields will lead to increased light, wind, and water penetration into adjacent forest edges. This will result in forest edge effects such as a higher density of saplings, more shrub cover, adventitious limbs on overstory trees, and an increase in plants more typical of open areas. Species composition in forest edges

may shift away from shade-tolerant species that do not compete well in direct sunlight toward more shade-intolerant plants (Matlack 1994). This effect proceeds into the forest on a gradient diminishing with distance and will be most apparent in the five meters nearest the proposed fields.

These adverse edge effects are expected to be negligible to minor in forests adjacent to the fields of CVNP, considering the current state of these areas. Edge effects are already readily apparent as the current “open fields” have been managed, manipulated, or disturbed in recent times. On the “older fields”, some of which appear to have been undisturbed for approximately 15 years, edge effects are still apparent although not as pronounced as on the more “open fields”. Hence, continued management of the “open fields” would result in only negligible adverse impacts due to changes in edge effects, while renewed management on “older fields” would result in minor adverse impacts due to edge effects.

The introduction and spread of non-native invasive plants is often associated with edge effects. While there is some evidence in the literature to suggest this is true, not all studies have so concluded (Matlack 1994). Invasive plant issues will be analyzed separately in the following sections.

Fragmentation of habitat can be a concern for populations of some native plant communities. The effects of continued fragmentation on plant communities, factors such as increased light penetration, smaller patch size, and lower soil moisture, can alter the habitat enough to make the affected area unsuitable for the plants growing there. When this happens, plants more adapted to the new conditions move in. This results in a gradual change in the species composition in the affected area. Also, some plants have been shown to need large areas of continuous tree canopy to properly reproduce and thrive (Jules 1998).

Arresting succession in the proposed agricultural lands would maintain the current fragmentation levels of forested areas adjacent to the fields. If succession were permitted to occur naturally, many small gaps in forest cover would eventually become closed. Additionally, the clearing of the “older fields” would result in increased fragmentation of plant communities within successional habitats. These adverse effects of fragmentation are expected to be negligible to minor. None of the impacts common to all alternatives are expected to lead to an impairment of the natural vegetation of Cuyahoga Valley National Park.

4.2.4. Cumulative Impacts Common to All Alternatives

Any future actions to reduce the deer herd in CVNP (as discussed in Section 4.2.6.1) may reduce deer impacts on vegetation under all alternatives.

The presence of West Nile Virus (WNV) in the region will have a moderate to major negative impact on all bird species, including species of concern. WNV impacts would potentially exacerbate negative impacts of all alternatives on rare or declining bird

populations at a local or regional level. Mosquito management by communities surrounding CUVA or by CUVA itself to control WNV could minimize effects of the disease on local birds.

4.2.5. Impacts of Alternative 1 - No Action

4.2.5.1. Direct and Indirect Impacts

Areas adjacent to agriculture in the park will be at risk for the introduction of exotic plants, whether through escapes from cultivation, seeds in organic materials brought in from other sites as feed or crops, or other accidental introduction into the natural ecosystem. These exotics could include invasive plants that may be difficult to control.

A major factor that contributes to the spread of invasive plant populations is soil disturbance. Such disturbances allow seeds or parts of plants (which can spread vegetatively), to establish new or expanded populations. Agricultural activities that involve soil disturbance, such as plowing, livestock grazing or movement, or construction of new buildings could lead to the establishment or spread of non-native invasive plants. Non-native invasive plants displace native plants, often forming monocultures. They are often of limited wildlife value, and they decrease the species diversity of the area invaded.

Since the emphasis of this alternative is on conventional farming through SUPs, which often includes plowing of fields and other disturbances, these adverse impacts are expected to be moderate under Alternative 1. Negligible impacts are expected when fields are mowed or hayed.

Vegetation and soil may also be disturbed or trampled by movement of domestic animals. This includes vegetation in the fields and along movement corridors as animals are moved from pasture to pasture, barn to pasture, or pasture to barn. The limited amount of livestock expected under this alternative would cause negligible impacts.

Impacts on the vegetation in areas adjacent to managed fields are expected. These impacts will vary depending on the management of a given field. If a field is row cropped, erosion and possibly greater nutrient runoff could create more lush growth, a build-up of eroded soil deposited near obstacles to water flow, or other impacts. If a field is grazed, impacts may be limited to occasional browsing across the fence by livestock, and nutrient loading from manure. Nutrient flows could indirectly change the soil chemistry in nearby areas over time. This change could alter the species composition over time, replacing current vegetation with that which thrives in the newly created conditions.

As this alternative is likely to include uses of conventional fertilizers and pesticides and some livestock grazing, nutrient flows and potentially pesticide residues are expected to flow into the surrounding soil. Overall, adverse impacts on vegetation in surrounding areas are expected to be moderate adjacent to crop and livestock fields.

Any additional indirect impacts on park forests due to anticipated changes in deer distribution and habitat availability will be negligible under this alternative.

4.2.5.2.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.2.5.3.Conclusions

Agricultural activities that involve soil disturbance, such as plowing, livestock grazing, or construction of new buildings could lead to the establishment or spread of non-native invasive plants resulting in moderate adverse impacts. Negligible impacts from animal movements or trampling are expected. Adverse impacts on vegetation surrounding agricultural lands from nutrient and pesticide flows are expected to be moderate adjacent to crop and livestock fields. Impacts on forests relating to deer are considered negligible. The implementation of this alternative is not expected to lead to an impairment of the natural vegetation of Cuyahoga Valley National Park.

4.2.6. *Impacts of Alternative 2 - Countryside Initiative (Preferred Alternative)*

4.2.6.1.Direct and Indirect Impacts

Risks from the spread of invasives are similar but less significant than in Alternative 1. Sustainable practices such as no-till planting and the use of cover crops would result in limited soil disturbance, resulting in a negligible risk of spreading invasive species. However, the wider variety of specialty crops that will likely be grown under this alternative may result in a slight increase in the potential risk for escapes. Increased amounts of livestock feed also slightly increase this risk. Overall, minor to moderate adverse impacts from the spread of invasives are expected under this alternative.

Since this alternative will likely include more livestock than Alternative 1, it is likely that increased trampling of vegetation and soil disturbance will occur. The additional trampling of vegetation by livestock is expected to be negligible within actual proposed fields. However, on the pathways between fields, trampling will occur which will result in destruction of some vegetation. Additionally, if livestock is moved through these areas during wet periods, it is likely that greater trampling will occur as pathways widen due to the livestock avoiding standing water which may pool in some areas. Trampling during wet weather increases soil compaction, which may inhibit the reestablishment or continued growth of plants in the pathways between the fields. Moving livestock during wet periods could also exacerbate soil disturbances, creating conditions in which invasive plants could become established. This may increase the risk of invasive plants spreading,

and lead to minor vegetation destruction. Related adverse impacts under this alternative are expected to be minor.

As non-chemical fertilization and biological pest control is more likely to occur under this alternative, as well as the fact that the land will be managed in an integrated manner, it is likely that impacts on surrounding vegetation will be negligible to minor.

As discussed in Section 4.3.6, this alternative is likely to exclude white-tailed deer from much of the prime deer foraging habitat in the park because of the increased fencing associated with this alternative. As deer populations shift in response to the altered conditions under this alternative, increased browse pressure is likely to result in moderate adverse impacts on the forests of the park and surrounding landscape by exacerbating current conditions. Although deer browsing pressure can be expected to decrease over time due to increased starvation and decreased populations of deer under this alternative, the indirect impacts of high levels of browsing during the time it takes for that decrease to occur are likely to be much longer lasting than the direct impacts of increased browsing itself.

Upland forests, which already have a sparse understory and may already be experiencing decreases in species diversity due to deer (NPS 2001c), will be impacted even more by the deer population shifts caused by this alternative. Sensitive species susceptible to browse by deer, such as *Trillium grandiflorum*, which is currently experiencing a loss of reproduction due to deer (NPS 2001g), may become rare or extirpated from the park under this alternative. Moderate adverse impacts would be expected; loss of these species would constitute a major adverse impact.

Bottomland forests, where tree seedlings are currently not able to advance into taller height classes due to deer browsing (NPS 2001c), will likely experience a decrease in seedling numbers over time, which will exacerbate the low recruitment currently besetting these forests. This would result in moderate adverse impacts on these forests.

A possible long-term result may be the failure of forest regeneration in the bottomland forests of CVNP, resulting in a loss of forest cover once the existing overstory trees die. Should this effect occur it would be a major adverse impact and could lead to an impairment if not properly mitigated.

In upland and bottomland forests, deer browsing causes decreases in the vertical structure of the forests (NPS 2001c). Vertical structure is the natural vegetation growing at various heights in the forest, which is used as habitat, food, and cover for animals. Increased deer browse under this alternative is expected to adversely impact the vertical structure of the forests of CVNP. The adverse impacts of this reduction in vertical structure are likely to be moderate.

4.2.6.2.Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.2.6.3.Conclusions

Minor to moderate adverse impacts from the spread of invasives are expected under this alternative. These impacts are less than in Alternative 1 due to an expected reduction in overall soil disturbances under sustainable practices. Negligible to minor adverse impacts on vegetation from livestock movements, especially in animal movement corridors between fields are expected. Adverse impacts on vegetation surrounding agricultural lands from nutrient and pesticide flows are expected to be negligible to minor since natural fertilizers and pesticide use is expected. Moderate adverse indirect impacts caused by increased deer browsing in forests are expected on forest groundcover species diversity, forest regeneration and, vertical structure. The possible loss of some sensitive understory species would be a major adverse impact if it occurred. This alternative also could exacerbate current conditions possibly leading to the failure of tree regeneration in bottomland forests. This adverse impact, should it occur, could lead to an impairment if not properly mitigated. The implementation of this alternative is not expected to lead to an impairment of the natural vegetation of Cuyahoga Valley National Park.

4.2.7. *Impacts of Alternative 3 - Vista Management*

4.2.7.1.Direct and Indirect Impacts

Since farming is very limited under this alternative, it is likely that impacts associated with soil disturbance, such as invasive species colonization, will not occur or be negligible due to the activity. The effects of livestock trampling, such as vegetation destruction, soil compaction, and soil disturbance will also be less likely under this alternative. Impacts due to introduction and spread of invasive plant species are expected to be negligible under this alternative.

The vegetation surrounding managed areas is unlikely to be impacted to any great degree under this alternative beyond the edge effects discussed in impacts common to all alternatives, since no additional nutrient loading or erosion potential is normally associated with mowing. The adverse impact on surrounding vegetation is expected to be negligible under this alternative.

Indirect impacts on park forests due to anticipated changes in deer distribution and habitat availability will be negligible under this alternative.

4.2.7.2. Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.2.7.3. Conclusions

Most impacts associated with agricultural uses are absent from this alternative. Any impacts on native vegetation are considered negligible. Expected impacts on native vegetation are lowest among the alternatives. The implementation of this alternative is not expected to lead to an impairment of the natural vegetation of Cuyahoga Valley National Park.

4.2.8. *Impacts of Alternative 4 - NPS Farming*

4.2.8.1. Direct and Indirect Impacts

Under this alternative, similar impacts on those in Alternative 1 are expected for lands farmed under SUPs. However, for lands managed for agriculture by NPS employees or contractors, impacts on vegetation would be significantly reduced. NPS farmers would use few fertilizers or pesticides. The NPS would only plant species and varieties known to be non-invasive. Additionally, few livestock are expected under this alternative. Additionally, larger buffers could be applied to be more protective of natural resources than in those instances where the natural resource issues must be balanced against a farmer's need for economic sustainability (as in Alternatives 1 and 2). Therefore, all impacts on vegetation related to these activities are considered negligible for the lands that are NPS-farmed. Overall adverse impacts for all farmed areas from the spread of non-native invasive plants and on vegetation adjacent to crop and livestock fields are expected to be less than in Alternative 1; minor to moderate adverse impacts are expected. Negligible impacts are expected on areas that are hayed.

Indirect impacts on park forests due to anticipated changes in deer distribution and habitat availability will be negligible under this alternative.

4.2.8.2. Cumulative Impacts

No cumulative impacts specific to this alternative are expected except those previously noted as common to all alternatives.

4.2.8.3. Conclusions

Overall adverse impacts from the spread of non-native invasive plants and on vegetation surrounding adjacent crop and livestock fields are expected to be minor to moderate under this alternative. Negligible impacts are expected on areas that are hayed. Negligible impacts from animal movements and deer browsing are expected. The implementation of this alternative is not expected to lead to an impairment of the natural vegetation of Cuyahoga Valley National Park.

4.2.9. *Irreversible or Irretrievable Commitments of Resources*

Populations of sensitive understory species, such as *Trillium grandiflorum*, may be locally extirpated from the park, if there is a dramatic increase in deer browsing. This may be an irreversible impact, as the species may not easily recolonize.

4.2.10. *Loss in Long-term Availability or Productivity of the Resource to Achieve Short-term Gain*

The possible failure of forest regeneration in the bottomland forests of CVNP may result in a loss of forest cover once the existing overstory trees die, making that resource unavailable until positive recruitment is restored and mature forest is reestablished. This could lead to an impairment of natural resources if not adequately mitigated.

4.2.11. *Unavoidable Adverse Impacts*

The loss of native vegetation of the proposed fields will have major adverse impacts at the field level, as most native vegetation in these fields will be destroyed. This loss is a minor impact on the park's vegetation when considered at the landscape level. Minor adverse impacts from possible crop hybridization with native plants are expected. Adverse impacts on vegetation from arresting the process of succession are expected to be minor to moderate, spatially broad, and long-term. Minor adverse impacts from increased edge effects and maintained habitat fragmentation are expected.

4.3. IMPACTS ON WILDLIFE

4.3.1. *Summary of Regulations and Policies*

NPS Management Policies (NPS 2001e, Section 4) direct the NPS to preserve and restore native plants, animals, and their communities and ecosystems, as well as biological processes including succession. This includes preserving and protecting “natural abundances, diversity, dynamics, distributions, habitat and behaviors...” as well as by “minimizing human impacts on” native plant and animal populations (Section 4.4.1). Management Policies (Section 4.1.5) also compel the NPS to restore natural conditions and processes to human-disturbed lands. Natural conditions include soundscapes (Section 4.9) as well as other conditions associated with biological resources. Domestic livestock and other exotic species are permitted (Section 4.4.4.1), so long as they are managed to prevent unacceptable impacts on park natural resources.

Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) directs Federal agencies to avoid taking actions that have a measurable negative effect on migratory bird populations. If such actions are taken, the EO directs agencies “to develop and implement within two years a Memorandum of Understanding with the U.S. Fish and Wildlife Service that shall promote the conservation of migratory bird populations”. This EO also defines migratory bird “species of concern” as “those species listed in the periodic report Migratory Nongame Birds of Management Concern in the United States, priority migratory bird species as documented by established plans [such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas], and those species listed in 50 CFR 17.11 [Endangered Species Act]”.

The ESA directs federal agencies to assess the effects of their proposed actions on threatened and endangered species and critical habitat, and requires consultation with the U.S. Fish and Wildlife Service if an effect is anticipated.

4.3.2. *Methodology*

Impacts of the proposed action to wildlife were assessed primarily in terms of potential effects on (1) amount and quality of wildlife habitat, (2) distribution of animals, and (3) levels of direct disturbance (e.g., harassment, mortality) to species. Methods employed in this assessment included determining which species were most likely to be present in areas affected by the alternatives, habitat requirements of potentially affected species, existing amounts and quality of habitats for these species within the park, and ecological relationships among potentially affected species (when possible). Analyses relied upon NPS inventory, monitoring, and research data, scientific literature, and professional knowledge about individual species biology and habitat requirements. Impacts on nuisance wildlife themselves are assessed, but the human component of the equation (how humans are impacted by nuisance wildlife responses) is addressed in Section 4.5.

Impacts on wildlife associated with farm ponds are examined in Section 4.4 - Impacts on Water Resources.

Because the impacts of proposed alternatives are incremental over a 10-year period, it is difficult to quantify impacts at each increment of the program. Thus, impacts were largely analyzed in terms of total anticipated changes from existing conditions after 10 years. Furthermore, because of the complex, dynamic nature of both the land ownership matrix within and outside of CVNP and of wildlife populations in a human-dominated landscape, it is difficult to accurately predict and quantify all potential impacts of the proposed actions on all potentially affected wildlife over 10 years. Therefore, in this analysis, impacts on wildlife are assessed in terms of likely worst-case scenarios. Toward that end, one assumption for this analysis is that all acreage proposed for each alternative would be completely utilized for the purposes described and in the proportions described. It is also assumed that all of the “older field” habitat with significant shrub/sapling growth that is currently unmanaged would be used or managed under the alternatives.

4.3.3. Impacts Common To All Alternatives

Federally-threatened and Endangered Animal Species. Before active management is initiated on any field, a field visit will be conducted which will include general screening for the presence of federally-listed species or their habitats.

The proposed action does not directly affect Indiana bat roosting or foraging habitat. Agricultural activity is relegated only to relatively open space with appropriate protective buffers to both wetlands and riparian areas. No large-scale removals of mature trees or impacts to forests are planned under any alternative. It is possible that the removal of individual potential roost trees may be required when such trees pose a safety hazard or threaten agricultural infrastructure. However, the NPS will follow USFWS guidelines on the assessment and removal of such trees. Whenever possible, trees exhibiting roost characteristics (exfoliating bark, cavities) will not be cut during the Indiana bat roost period of April 15th – September 15th. If this schedule cannot be followed, then bat surveys will be conducted to assess the presence of Indiana bats before trees are removed. No impact on the Indiana bat is expected from the proposed action.

There is no expectation that the federally-threatened bald eagle would be affected by the proposed action as the bird occurs so infrequently as a transient. The eastern massasauga (an ESA candidate for listing) has not been recorded in the park. No impacts on these species are expected.

Should any other populations of federally-listed species ever be discovered in the park, the NPS will coordinate with the U.S. Fish and Wildlife Service as required under the ESA to protect the species from any impacts associated with this or other NPS actions.

Impacts on state-listed threatened and endangered bird species are discussed in the following wildlife impact analyses.

Habitat Loss. All alternatives involve clearing and maintaining open areas, some of which have begun to succeed into a young forest habitat. By impeding and, in some cases, reversing forest succession, current forest fragmentation and edge effects are maintained and in many cases amplified. The impacts of habitat fragmentation and increased edge effects on biodiversity are well documented (e.g., see summaries in Meffe and Carroll 1994). Forest gaps that would have naturally closed will be kept open. “Older field” boundaries that provide a transition zone between habitats will be removed reestablishing clear forest-field boundaries. These effects will cause additional moderate adverse impacts on forest interior wildlife species, particularly birds, which require larger tracts of habitat for successful breeding. Increased amounts of distinct edge habitat will continue to enhance populations of generalist species such as raccoons, crows, and brown-headed cowbirds. While these generalist species will experience minor beneficial effects, they prey on bird nests and can lower nesting success to the extent that bird populations are non-sustaining, possibly leading to local extirpations.

The loss of 41 percent of the “older field” habitat (262 acres) in CVNP through clearing would have adverse impacts on terrestrial birds, small mammals, and butterflies that require that habitat type. Most animal species found in “older fields” are generalists that also occur in older or younger successional stages, so adverse impacts from the proposed action would be expected to be minor for populations of these species. However, a few species that are highly dependent on “older fields”, such as the golden-winged warbler (*Vermivora chrysoptera*), a bird species of high conservation priority (Hunter et al. 1993) in the region, could experience a higher level of impact. The continued loss of “older fields” over time to successional growth will likely exacerbate the adverse impacts of the proposed action.

To help mitigate these impacts, a significant portion of the “older fields” has been intentionally left in the landscape, including the preservation of some of the largest tracts available (several 50-acre blocks) on federal land. As an additional required mitigation measure, the park will develop a Habitat Management Plan for shrub and other “open field” habitats within 5 years. A full review and assessment of appropriate park habitat management options is needed to complete this task. The park will evaluate the desired successional stages, total acreage, landscape distribution, temporal management regimes, and available tools for managing these habitats and balance the benefits of preserving rare habitats with the adverse effects of arresting succession (i.e., edge effects and fragmentation). Such a plan will identify park goals and areas for maintenance as shrub habitats. Grassland habitat management efforts also will be formalized in that document. These habitat management efforts are in compliance with guidance provided in EO 13186. Management plans will reflect any additional NPS guidance related to this EO as it becomes available. Appropriate NEPA compliance and environmental analysis will be required for such a plan.

Pesticides and Herbicides. Changes in pesticide use could have beneficial or adverse effects on wildlife. The effects on insects and insect larvae would be most direct, but would be negligible for most insect populations, as insects are typically wide-ranging. Insectivorous wildlife species such as birds and small mammals may also be affected. Since most insecticides would be expected in corn crops (Table 2.2), the greatest effect would be to depress food availability for some birds and mammals. Use of herbicides in these crops would have little impact on most wildlife species. Impacts of the use of pesticides and herbicides would be limited and localized, having negligible impacts on the populations of affected species.

None of the impacts common to all alternatives are expected to lead to an impairment of the wildlife resources of Cuyahoga Valley National Park.

4.3.4. Cumulative Impacts Common To All Alternatives

As areas outside of CVNP in surrounding counties become more developed and lose forests and other greenspace, forest and other natural habitats within CVNP will become increasingly isolated. Amplified fragmentation effects on habitats within CVNP due to the proposed action, coupled with isolation, will further degrade the quality of forest habitats for forest dependent species. Continued overabundance of deer and related overbrowsing of forest would exacerbate this condition. Local extirpation of sensitive forest species (e.g., Kentucky warbler (*Oporornis formosus*), ovenbird (*Seiurus aurocapillus*), cerulean warbler (*Dendroica cerulea*) and the Canada warbler (*Wilsonia canadensis*)) currently found in the park could result from these combined conditions. These losses would be considered a major adverse impact.

Any future actions to reduce the deer herd in CVNP may reduce impacts on and related to deer under all alternatives.

4.3.5. Impacts of Alternative 1 - No Action

4.3.5.1. Direct and indirect impacts

This alternative would increase the amount of agricultural activity in CVNP, primarily through SUPs. White-tailed deer would lose some “older field” (early successional) habitats but these would be replaced in most cases by other suitable (mowed areas) or highly preferred foraging and bedding areas (conventional agricultural fields). Little or no increase in fencing is anticipated under this alternative, so deer and other wildlife would have access to most fields for foraging. Given the same types and proportions of crops as currently exist under SUP (Table 1.1), farms would consist largely of conventional crops such as corn, hay, oats, pumpkins, and soybeans. The increase in fragmentation effects and in availability of high quality forage in these crops would be expected to maintain or enhance population size of the deer herd in CVNP. Thus, the impact of this alternative on the deer population would be beneficial, yet minor.

Attraction of deer, woodchucks, raccoons, and geese to greater amounts of corn or other vulnerable crops under this alternative may cause increased crop damage and greater incidence of harassment of wildlife using auditory devices (e.g., corn cannons) or killing of animals under nuisance wildlife permits on adjacent non-federal land. This localized hunting or harassment likely would have a minor adverse impact on the overall populations of these species.

Total amounts of early successional habitats would be largely maintained and could slightly increase under this alternative. The maintenance of grassland areas through mowing for vista and habitat management will maintain the availability of those habitat types for many rare, sensitive, or declining species, as well as for deer, coyotes, and many raptors that forage or hunt preferentially in those areas. The continued existence and probable increase in numbers of hayfields among SUP holders would provide additional suitable habitat for grassland species. Management of some the largest and highest quality grassland areas specifically for habitat value will maintain and increase the value of those areas. Quality of those early successional habitats would vary depending on size of tracts, but overall there would be negligible to minor beneficial effects of this alternative to wildlife of early successional areas.

Although wetland buffers will exist, some agricultural areas near wetlands are likely to be impacted by beaver activities, either from flooding due to damming, or damage to crops and trees. This will increase the occurrence of beaver-human conflicts, possibly resulting in nuisance trapping and killing, relocations, and damage to beaver structures. These impacts are expected to be localized and relatively uncommon, representing only minor adverse impacts on the beaver population.

4.3.5.2.Cumulative Impacts

No cumulative impacts are expected under this alternative beyond those identified as common to all alternatives.

4.3.5.3.Conclusion

Alternative 1 would provide minor benefits to white-tailed deer populations due to increased forage, but these would be offset by impacts from more human conflicts and harassment. Negligible to minor beneficial effects would be provided to grassland and early successional species (including state-listed rare or declining species) due to the maintenance and possible net increase in these habitats. There would be minor adverse impacts on beaver from conflicts with humans. Adverse impacts on coyotes from human-wildlife conflicts would be negligible and for other wildlife would be negligible or minor. The implementation of this alternative is not expected to lead to an impairment of the wildlife resources of Cuyahoga Valley National Park.

4.3.6. *Impacts of Alternative 2 - Countryside Initiative (Preferred Alternative)*

4.3.6.1. Direct and indirect impacts

Increased agriculture under this alternative presents a different set of impacts on wildlife compared to other alternatives primarily because of the predominant types of agriculture expected and the anticipated significant increase in the amount of fencing.

Because of the desire for economically sustainable farms, and the predominance of mixed crop/livestock operations in this initiative, fencing to exclude deer, coyotes, beaver, woodchucks, and rabbits will be essential. Berry crops and orchards also will require netting or other deterrents of birds during peak ripening periods. Fencing and netting will effectively negate nearly all potential habitat benefits of these areas for wildlife species. While some limited forage will be available in these areas, especially when farmers encourage the presence of birds for pest management or plant feed crops to distract wildlife from more valuable crops, these benefits would be negligible compared to the original amounts, quality, and diversity of forage.

This amounts to a maximum loss of almost 30 percent of all open habitats (1109 acres) within the park. Many of the remaining open habitats are not federally-controlled, and little or no new open unmanaged acreage is expected to arise to mitigate this impact. Additionally, the shift toward crop/livestock farming is expected to result in a decrease or possible absence of significant hay fields among the designated agricultural lands. While over time, a net loss of hayfields is not expected, remaining hayfields would likely be much smaller than the large, consolidated hayfields (>10 acres) existing today. The result would be further reduction in the amount of suitable habitat for grassland bird, mammal, and butterfly species that depend on larger habitat blocks. Thus, the net impact of this alternative would be a net loss of open habitat across the park and a near complete loss or degradation of habitat for most wildlife species in areas under long-term leasing.

This would be a moderate adverse impact on species that require early-successional habitats in the park. The preservation of large grassland areas through habitat management and the exclusion of “older field” habitats with plans to manage and maintain shrub habitats help reduce and mitigate these adverse impacts on species dependent upon these habitats.

Yet, the loss of a large proportion of early successional and agricultural habitats through land conversion and subsequent fencing is expected to affect distribution and movements of white-tailed deer and coyotes. White-tailed deer will be forced to aggregate more on the few remaining open areas, including residential areas, and will likely browse more in forest habitats. The primary expected effect of the proposed alternative on deer populations would be to remove high-quality forage areas that currently help to sustain them. This will lower the apparent carrying capacity of the remaining landscape, leaving more deer than can be supported. Winter starvation would be expected to increase, as would mortality due to vehicle accidents as deer move more in search of adequate food resources. Increased browse pressure on fewer lands, including residential yards and

gardens, will increase the level of deer-human conflicts and may lead to direct killing of problem deer by some private landowners.

Similarly, coyotes will lose many prime hunting areas and, being highly opportunistic, would likely increase use of residential areas for foraging. This would be expected to result in greater incidence of nuisance coyote trapping and killing as well as increased mortality from vehicles.

Thus, reduction in the amount of prime habitat, increased human-wildlife conflicts and traffic mortality for both deer and coyotes is expected to have moderate to major adverse impacts on populations of those species.

Fencing effects on deer and coyotes are somewhat mitigated by the fact that fencing installation will occur gradually over time as farms are established. Thus, populations of these species will be able to adjust distribution gradually rather than being displaced suddenly and completely from all farm areas.

Other species, such as raccoons, woodchucks, skunks, opossums, and geese may also seek other areas for foraging, and exhibit similar tendencies to utilize residential areas more. Again, this could increase human-wildlife conflicts sufficiently for these species to be harassed or killed more frequently. Additional adverse impacts from this alternative to populations of these species would likely be minor, however, given their current status as common nuisance species.

Fencing may present direct hazards to wildlife that become entangled or come in contact with electrified fences. Use of guardian dogs will cause additional direct harassment of wildlife that are attracted to the vegetable and fruit crops, livestock, and poultry present on farms. These impacts are expected to be localized in time and space, however, and would present a minor adverse impact on wildlife populations.

Presence of intensively managed pastures will provide additional foraging habitat for brown-headed cowbirds, which are detrimental to other bird species. However, the relative increase in cowbird habitat would be small and the additional impact on bird populations would be minor. Some raptor species may benefit from an increase in livestock pastures though the preferred management intensive grazing is not expected to allow support of many small mammals or other prey (compared to other grassland or early successional areas), so the benefit to raptors would be negligible.

Direct impacts on beaver populations are expected to be similar to those described under Alternative 1.

4.3.6.2.Cumulative Impacts

Loss of primary foraging areas for white-tailed deer would cause higher browse intensity within forest habitats, further exacerbating impacts on forest structure and habitat quality

for forest understory birds and other wildlife. In the absence of deer management in the park, the population would eventually be expected to decrease in accordance with food availability. This would effectively reduce one of the factors contributing to deer overabundance in the park, providing a clear benefit to park ecosystems in the long-term. However, a substantial short-term increase in browsing pressure on forest ecosystems in the park could potentially result in long-term adverse impacts on those resources before natural regulatory processes lowered deer populations. The potential for local extirpations of sensitive forest species described as common to all alternatives in Section 4.3.4 would be moderately increased under such increased browsing pressure.

Regional loss of large hayfields, pastures, and other grassland agricultural areas to residential development over time in counties surrounding the park will exacerbate the impacts of habitat loss under this alternative for grassland species within the park.

4.3.6.3. Conclusion

Direct and cumulative adverse impacts on wildlife are greatest under this alternative primarily due to nearly complete loss of habitat in agricultural areas through fencing and wildlife deterrence.

Grassland and early successional birds (including some state-listed rare or declining species), mammals, and butterflies will suffer moderate adverse impacts under this alternative due to net loss of habitat.

White-tailed deer and coyote populations also would encounter moderate to major adverse impacts from loss of habitat and food resources, increased conflicts with humans, and increased vehicle accidents. The cumulative effects of heavy browse pressure of overpopulated deer in forests may result in the loss of sensitive bird species, which would be a major adverse impact.

The implementation of this alternative is not expected to lead to an impairment of the wildlife resources of Cuyahoga Valley National Park.

4.3.7. *Impacts of Alternative 3 - Vista Management*

4.3.7.1. Direct and Indirect Impacts

This alternative provides the greatest amount of early successional habitat with minimal management through mowing. All areas would be open to wildlife access for food and bedding habitat. Early successional and grassland species would gain moderate to major benefits due to the increased amount of habitat available. Coyotes would gain moderate to major beneficial effects from an increase in good hunting areas.

White-tailed deer would lose some high quality forage currently existing in agricultural lands. This could result in some winter starvation, though this impact would likely be negligible to minor, given the overall increase in successional habitats.

Distributions of deer and coyotes likely would not change and thus human conflicts with these species would either remain the same or probably decrease because fewer agricultural landholders would be affected. Similarly, beaver activity would have little or no adverse impact on areas managed for vista purposes and so would not lead to conflicts. These impacts equate to minor to moderate benefits to populations of these species.

Raccoons, woodchucks, and geese probably would have fewer conflicts with agricultural landholders, but overall impacts on these species would be negligible.

4.3.7.2.Cumulative Impacts

No additional cumulative impacts are expected beyond those outlined for all alternatives.

4.3.7.3.Conclusion

This alternative provides the greatest net benefits to all wildlife species. Benefits to grassland and early successional species would be moderate to major. An overall increase in early successional habitats and decreases in conflicts with humans would offset negligible to minor adverse impacts on deer from some loss of agricultural forage. Coyotes and beaver would also gain minor to moderate benefits from decreased conflicts with humans. Benefits to nuisance wildlife such as raccoons, woodchucks, and geese would be negligible. The implementation of this alternative is not expected to lead to an impairment of the wildlife resources of Cuyahoga Valley National Park.

4.3.8. *Impacts of Alternative 4 - NPS Farming*

4.3.8.1.Direct and Indirect Impacts

Impacts expected under this alternative would largely be the same as in Alternative 1, with two distinct differences. First, because less area is maintained under vista management in this alternative, it is expected that fewer areas may be available as early successional habitat than in Alternative 1. Large blocks of high quality habitat would remain in the designated habitat management areas. Additional habitat for those species would likely remain since haying may continue or increase in some areas. Overall, a small net loss of early successional and grassland habitats is expected, which would present a negligible to minor adverse impact on species dependent on those habitats.

Secondly, while agricultural uses would increase across the park, less fencing for wildlife deterrence is expected. Therefore deer and other wildlife (e.g., coyote) would continue to have access to high quality forage and hunting areas on many agricultural fields. Some crops may be left unharvested. Depending on the amounts of preferred forage that would occur in this increased agricultural landscape, deer populations could increase above current levels in response to greater food availability. This could result in more vehicle accidents due to presence of more deer leading to minor adverse impacts, but overall distributions of deer would not be expected to change significantly.

Limited increases in SUP holders and long-term lessees would keep conflicts with crop-damaging wildlife from increasing significantly. Harassment and killing of deer and other wildlife would not be expected to increase from current levels. These changes would represent a negligible impact on populations of these species.

4.3.8.2.Cumulative Impacts

Any increase in deer populations above current levels could increase browse pressure on forest ecosystems, adversely impacting sensitive bird species and other wildlife. However, as deer population increases attributable to this alternative are likely to be relatively small, adverse impacts from the same level of increase in browsing would be minor relative to current browse damage to forests.

4.3.8.3.Conclusion

Impacts are largely the same as in Alternative 1, with a few distinct differences. This alternative would have a negligible to minor adverse impact on early successional and grassland species, and a minor cumulative adverse impact on forest understory species. There could be minor to moderate benefits to the white-tailed deer population due to increased forage. Negligible impacts on coyotes, raccoons, geese, and other nuisance species from additional conflicts with SUP farmers are expected. The implementation of this alternative is not expected to lead to an impairment of the wildlife resources of Cuyahoga Valley National Park.

4.3.9. *Irreversible or Irretrievable Commitments of Resources*

Local extirpations of some forest interior bird species could occur under all alternatives as a cumulative impact due to an amplification of forest fragmentation effects, continued deer overbrowsing in forests, and continued regional degradation and loss of forests. These extirpations of bird species may be an irreversible adverse impact, as these species would not be expected to return without adequate habitat available.

Irretrievable (short-term, reversible) commitments of resources would occur under Alternative 2 because the deer population potentially would exceed the availability of

food resources in the short-term, resulting in starvation of a proportion of individuals as the population regulates.

4.3.10. Loss in Long-Term Availability or Productivity of the Resource to Achieve Short-Term Gain

Under Alternative 2, white-tailed deer and coyote productivity could be adversely affected in the long-term.

4.3.11. Unavoidable Adverse Impacts

The conversion of early successional habitats under all alternatives will have unavoidable moderate adverse impacts on forest interior species due to maintenance of forest fragmentation and edge effects.

Under alternative 2, there are unavoidable moderate adverse impacts on early successional species.

Under alternative 4, there are unavoidable negligible to minor adverse impacts on early successional species.

4.4. IMPACTS ON WATER RESOURCES

4.4.1. Regulations and Policies

The NPS is charged with maintaining, rehabilitating and perpetuating the inherent integrity of water resources and aquatic ecosystems consistent with the Clean Water Act and other state and local laws. NPS Management Policies (NPS 2001e, Section 4.6.6) state that the NPS will manage watersheds as complete hydrologic systems, and will minimize human disturbance to the natural upland processes that deliver water, sediment, and woody debris to streams, and will achieve the protection of watershed and stream features primarily by avoiding impacts on watershed and riparian vegetation, and by allowing natural fluvial processes to proceed unimpeded. The *Riparian Buffer Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent most direct and indirect impacts on rivers and streams from NPS activities through buffer zone establishment (NPS 2002a). The park has recently begun to implement this protocol.

NPS Management Policies (NPS 2001e, Section 4.6.5) and Executive Order 11990 "Protection of Wetlands" direct the NPS to minimize and mitigate the destruction, loss, or degradation of wetlands; preserve, enhance, and restore the natural and beneficial values of wetlands; and avoid direct and indirect support of new construction in wetlands unless there are no practicable alternatives and the proposed action includes all practicable measures to minimize harm to wetlands. NPS policies for implementing Executive Order 11990 are found in Director's Order 77-1 "Wetland Protection" and the associated Procedural Manual. This order requires that parks assess all direct or indirect impacts, including whether each alternative "supports, encourages, or otherwise facilitates additional wetland development". The *Wetland Protection Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent most direct and indirect wetland impacts from NPS activities on agricultural lands through wetland identification, delineation, quality assessment, buffer zone establishment, and monitoring (NPS 2002b). The park has recently begun to implement this protocol. Ponds in CVNP are treated as 'artificial wetlands' under Director's Order 77-1. The CVNP Pond Management Plan (NPS 1993b) provides a summary of pond resources and outlines how ponds are managed for recreational values.

Section 5.(d) of the National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) of 1968 requires that "In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas." It further requires that "the Secretary of the Interior shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas.....shall be evaluated in planning reports by all Federal agencies as potential alternative uses of water and related land resources involved." The Nationwide Rivers Inventory (NRI) is a register of river segments that potentially qualify as national wild, scenic or recreational river areas under the National Wild and Scenic Rivers Act.

4.4.2. Methodology

The analysis of impacts on water resources is based on a review of existing park natural resource data, park planning documents, professional opinion, and scientific literature. No original data collection was undertaken as part of this environmental impact statement.

In addition to the assessment of typical direct and indirect impacts on water resources, the potential that the alternatives would facilitate future development or impacts on water resources or their buffer zones was examined. It was assumed that such situations are most likely to be associated with long-term leasing of farmsteads and new construction activities. It was also assumed that park utilization of structures and maintenance of open space by mowing would not often result in these unavoidable impacts due to the inherent flexibility of these management approaches.

It was assumed that the protective buffers prescribed in the *Riparian Buffer Plan for Proposed Agricultural Lands* and the *Wetland Protection Plan for Proposed Agricultural Lands* would be implemented prior to action and that these buffers would effectively prevent most direct and indirect impacts to water resources. Effects on the scenic values of the Cuyahoga River NRI segment are discussed in general with other scenic values in Section 4.5.3.

All impacts on rivers, streams, ponds, and wetlands were considered qualitatively in this analysis, as few quantitative data are available and many potential impacts are related to yet unspecified site-level plans. Ponds with wetland areas were treated as wetlands in this analysis.

4.4.3. Impacts Common to All Alternatives

Wetlands and Surface Water. The proposed action may affect wetlands and the Cuyahoga River and its tributaries through direct encroachment, livestock activities, disturbances to wildlife, run-off of pesticides, nutrients, and manure, sedimentation, introduction of exotics, and water diversion (Castelle et al. 1992, Wenger 1999). However, the NPS has developed protection plans for CVNP wetland (NPS 2002b) and riparian areas (NPS 2002a) that will prevent direct and indirect impacts on the Cuyahoga River, streams, and wetlands from NPS activities on agricultural lands. Effective protection for these resources will be afforded through the establishment of protective buffer zones that are required under all alternatives. Summaries of these plans are found in Appendix H. No discernable impacts to the Cuyahoga River (including the NRI segment), streams, and wetlands are expected under the proposed action when these buffer guidelines are followed. It is possible that despite buffer zone establishment, impacts on these resources may yet occur; however, these impacts would be considered negligible. Should any buffers be found to be ineffective through park monitoring efforts, corrective measures and mitigation will be undertaken.

It is possible that the NPS, after determining that no practicable alternative exists, may decide to expressly permit some level of adverse impact on wetlands or other water resources or their buffers to increase the utility or cultural resource value of a structure or farmstead. Such situations can not be readily identified at this time as they are related to site-specific plans not yet developed. Should these situations arise, the NPS will implement environmental compliance and documentation procedures as required under the Clean Water Act, NEPA, and Director's Order 77-1 (Wetland Protection) to examine site-specific impacts. The NPS will first seek to avoid impacts to wetlands. Unavoidable impacts will be minimized and mitigated.

Farm Ponds. The use of two small farm ponds (Leyser and Tadpole) as a water source for agricultural activity is expected under all alternatives since these ponds are assigned to a farming use that is not expected to change. The ongoing use of these 'artificial' wetlands is an excepted action under Director's Order 77-1 not requiring a Statement of Findings. While these ponds are not currently used, water may occasionally be pumped from them to irrigate crops or water livestock. Regular uses would not usually result in significant changes in water levels. Some adverse impacts on pond water quantity and quality, vegetation, and wildlife are expected under regular use, but these are considered negligible to minor. However, during times of drought, such use of the farm ponds may further exacerbate low water levels and dissolved oxygen levels resulting in increased mortality for aquatic wildlife and vegetation. Loss of local breeding populations of some aquatic wildlife could occur. Changes in the type and abundance of wildlife and vegetation in ponds may result. These adverse impacts may range from moderate to major depending on the length of the drought. Impacts are somewhat mitigated by the temporary nature of the impact as water levels would be expected to return over time. Fink Pond may experience similar uses and impacts should it be assigned for agricultural uses under Alternatives 1, 2, or 4.

Natural Wetland Restoration. Natural wetland restoration processes continually occur throughout the park and may be expected to occur in some areas designated for agricultural use in the park. The restoration process in these designated areas may be inhibited under all alternatives. Active management of lands or beaver populations may inhibit the restoration of hydrology, hydric soils, and hydrophytic vegetation. The loss of this restoration potential constitutes a minor adverse impact on the park's wetland system.

None of these impacts common to all alternatives are expected to lead to an impairment of the water resources of Cuyahoga Valley National Park.

4.4.4. Cumulative Impacts Common to All Alternatives

It is likely that continued suburban development outside of CVNP will continue to reduce the number of wetland areas and their quality in the Cuyahoga River watershed, making CVNP wetlands even more valuable from a regional context. Adverse impacts on wetlands inside the park may become more significant as total wetland area in the watershed is reduced.

Likewise, continued suburban development will likely adversely impact the water quality of rivers and streams outside of the park as well. Any additional adverse impacts on rivers and streams as they pass through CVNP to the Cuyahoga River may further exacerbate such water quality problems. This impact could range from negligible for highly degraded watercourses or minor to moderate for healthier watercourses.

4.4.5. Impacts of Alternative 1 - No Action

4.4.5.1. Direct and Indirect Impacts

It is possible that the NPS may, after determining that no practicable alternative exists, decide to expressly permit some level of adverse impact on wetlands or other water resources or their buffers to increase the utility or cultural resource value of a structure or farmstead. For Alternative 1, NPS-permitted impacts would not be expected to occur or may occur very infrequently since little if any new construction is anticipated and few new long-term leases for active farming will be issued under this alternative. Few situations are anticipated that might require impacting these resources because other practicable options are available. The inherent flexibility of this alternative would usually allow the NPS to easily avoid new actions that may impact wetlands by relocating such actions to other areas. NPS staff and SUP farmers would be required to conform to buffer plans to minimize and avoid impacts on these resources. Any such actions adversely affecting wetlands will require additional site-specific environmental compliance and possibly, permitting and mitigation actions. Should any such impacts occur, they would be considered negligible to minor and largely reduced by mitigation efforts.

4.4.5.2. Cumulative Impacts

No cumulative impacts are expected under this alternative beyond those identified as common to all alternatives.

4.4.5.3. Conclusion

Any adverse impacts on water resources under Alternative 1 would be considered negligible to minor and largely reduced by mitigation efforts. Additional compliance for site-level plans would assess site-level impacts. The implementation of this alternative is not expected to lead to an impairment of the water resources of Cuyahoga Valley National Park.

4.4.6. *Impacts of Alternative 2 – Countryside Initiative (Preferred Alternative)*

4.4.6.1. Direct and Indirect Impacts

Impacts similar to Alternative 1 are expected, however, in Alternative 2, such impacts on the Cuyahoga River, streams, and wetlands may occur much more frequently because the long-term leasing of farmsteads will likely require that these resources or parts of their protective buffers be used to develop effective working farmstead units. Construction of outbuildings, parking areas, farm ponds, and fencing and the need for livestock movement corridors and stream crossings may adversely affect these resources. Wetland areas may occasionally need to be used as a water source (i.e. when artificial wetlands such as farm ponds are used as a water source), modified, or possibly filled. Any such actions adversely affecting wetlands will require additional site-specific environmental compliance and possibly, permitting and mitigation actions.

Impacts on the Cuyahoga River and its tributaries are expected to be negligible to minor. Impacts on individual wetlands will likely range from negligible to major (should small wetlands be intentionally filled). The overall impact on the entire park watershed and system of wetlands is expected to be negligible as the NPS would largely mitigate any unavoidable impacts by restoring other wetland and riparian areas.

4.4.6.2. Cumulative Impacts

No cumulative impacts are expected under this alternative beyond those identified as common to all alternatives.

4.4.6.3. Conclusion

The potential for and anticipated level of adverse impacts is highest under this alternative relative to the other alternatives. Impacts on individual water resources under Alternative 2 would be considered to be negligible to major depending upon site-level plans that have not yet been developed. Additional compliance for site-level plans would assess site-level impacts. Any adverse impacts on the water resources of the park as a whole are expected to be negligible since any unavoidable impacts would largely be reduced by mitigation efforts. The implementation of this alternative is not expected to lead to an impairment of the water resources of Cuyahoga Valley National Park.

4.4.7. Impacts of Alternative 3 – Vista Management

4.4.7.1. Direct and Indirect Impacts

Impacts similar to Alternative 1 may be expected, except these would be expected to occur even less frequently as no new construction is planned and current farming activities under long-term and short-term leases will be significantly phased out over time. Impacts on water resources are expected to be the lowest among the alternatives. The focus on management for scenic values would allow the NPS to easily avoid any actions that may impact these resources by focusing any remaining construction or farming activities to areas without wetlands. Therefore, should any such impacts occur, they would be considered negligible.

4.4.7.2. Cumulative Impacts

No cumulative impacts are expected under this alternative beyond those identified as common to all alternatives.

4.4.7.3. Conclusion

Any adverse impacts on water resources under Alternative 3 would be considered negligible and largely reduced by mitigation efforts. The implementation of this alternative is not expected to lead to an impairment of the water resources of Cuyahoga Valley National Park.

4.4.8. Impacts of Alternative 4 – NPS Farming

4.4.8.1. Direct and Indirect Impacts

Impacts similar to Alternative 1 may be expected, since little if any new construction is anticipated and few new long-term leases for farming will be issued under this alternative. The inherent flexibility of this alternative would usually allow the NPS to easily avoid new actions that may impact wetlands by relocating such construction plans and long-term leases to other locations. Should impacts occur, they would be considered negligible to minor and largely reduced by mitigation efforts.

4.4.8.2. Cumulative Impacts

No cumulative impacts are expected under this alternative beyond those identified as common to all alternatives.

4.4.8.3. Conclusion

Any adverse impacts on water resources under Alternative 4 would be considered negligible to minor and largely reduced by mitigation efforts. The implementation of this alternative is not expected to lead to an impairment of the water resources of Cuyahoga Valley National Park.

4.4.9. Loss in Long-Term Availability or Productivity of the Resource to Achieve Short-Term Gain

Under all alternatives, inhibiting wetland restoration by managing lands for rural landscape values rather than allowing natural processes to occur may adversely affect the long-term productivity and utility of the wetland system of the park.

4.4.10. Irreversible or Irretrievable Commitments of Resources

Under all alternatives, the use of farm ponds during drought conditions may result in the irreversible loss of aquatic vegetation and wildlife. Wetland restoration processes that would naturally occur in some areas may be inhibited in areas managed for rural landscape values. The loss of wetland functions of these areas is irretrievable.

4.4.11. Unavoidable Adverse Impacts

No unavoidable adverse impacts are expected from the proposed action.

4.5. IMPACTS ON SOCIAL ENVIRONMENT

4.5.1. *Regulations and Policies*

Enjoyment of park resources and values is part of the fundamental purpose of all parks. The NPS Management Policies 2001 (NPS 2001e) provides the basic service-wide policies on visitor use and recreation activities (Section 8.2.2), visitor safety (Section 8.2.5), and interpretation and educational activities (Section 7.1). Director's Order #83: Public Health provides additional guidance.

4.5.2. *Methodology*

In evaluating impacts on the social environment, four areas of potential impact were analyzed: health and safety, nuisance wildlife, visitor use and experience, and local communities. The analysis of impacts on the social environment is based on a review of park planning documents, professional opinion, park surveys, and scientific literature. No original data collection was undertaken as part of this draft EIS.

The impacts on health and safety were qualitatively assessed by estimating the anticipated amounts of electric fencing and use of guardian animals under each alternative. The potential for increased deer-vehicle accidents was directly related to anticipated changes in deer populations and distributions discussed in Section 4.3. Similarly, impacts on the human component of the nuisance wildlife issue (how humans are impacted) were assessed based on the expected impacts on nuisance wildlife analyzed in Section 4.3.

The impacts on visitor use and experience were qualitatively assessed based on feedback from visitors about what they enjoy seeing (scenic values) and doing (recreational activities) in the park as indicated in Visitor Use Surveys (performed annually since 1998) and earlier research performed in the park (Anderson et al. 1992; Schleicher et al. 1994).

Impacts on local communities were based on qualitative assessments of the effects on school districts, local economies, businesses, and farmers. Economic impacts are not addressed in specific dollar amounts as actual direct and indirect impacts are difficult to predict and are dependent on many yet undefined factors. Therefore, only general and relative impacts are assessed.

Because the specific future uses of properties are not currently known, the proportion of the 54 *properties* to be used for residential purposes under each alternative was assumed to be equal to the proportional amount of *structures* assigned SUP and other short-term and long-term agreements (Table 2.1). The estimates of residential properties are: 30 (56 percent) under Alternative 1, 38 (70 percent) under Alternative 2, and 14 (25 percent) under Alternative 3 and 4.

Estimates of the number of children that school districts may have to accommodate were developed from estimations derived from a cursory review of current families living in park properties and recent proposals for the Countryside Initiative leasing program. Based on past patterns, approximately 1 in 3 NPS residential properties may have an average of 2 school-aged children. Impacts on school districts are partially based on interviews with the Woodridge School District's superintendent.

4.5.3. Impacts Common to All Alternatives

Scenic Values. Under all alternatives, the clearing of “older fields” to preserve the rural landscape will affect visitors by changing the scenic values of the park. Those visitors who prefer the aesthetics of a landscape composed of a patchwork of cleared or farmed areas with natural areas comprised largely of forests will experience moderate benefits from the proposed action.

For visitors who value the park primarily for its natural areas and prefer to see areas of human disturbance being reclaimed by natural processes, the proposed action will have moderate adverse impacts. Large relatively undisturbed areas will remain, but many recently disturbed areas will be kept clear, precluding closure of forest gaps in many areas.

Rehabilitation and preservation of the existing historic structures will provide moderate to major beneficial effects on the scenic values of the cultural landscape under all alternatives.

Wildlife Viewing. Additionally, visitors who value the park for its diversity of plants and animals may find bird-watching and wildlife viewing opportunities and variety reduced in “older fields”, which will be reduced by 41 percent. Many species of terrestrial birds, small mammals, butterflies, and other insects inhabiting these could be affected. These habitat conversions would result in a decrease in the number of areas and species people may view. These decreased wildlife-viewing opportunities will result in minor to moderate adverse impacts.

Local Communities. Under all alternatives, incremental changes in the number of NPS structures that are in active use are expected as they are rehabilitated. Some economic impacts on local communities from additional costs related to fire and emergency services, law enforcement, and road maintenance may be expected. These impacts would be widely distributed among park communities as most communities have six or fewer properties involved in the proposed action. Boston Township has the greatest potential for economic impact. Many of these changes in use involve simply switching from one type of active use to another, as all but 13 rural landscape properties are already in some kind of active use. Therefore, related economic impacts are considered negligible to minor and largely mitigated by the cooperative efforts and reimbursement programs already in place.

Similarly, no discernable changes in property tax revenue are expected as proposed NPS lands and properties have not been subject to property tax since their acquisition by the NPS.

None of these impacts common to all alternatives are expected to lead to an impairment of the social environment of Cuyahoga Valley National Park.

4.5.4. Cumulative Impacts Common to All Alternatives

Should the loss and fragmentation of forest habitats outside of the park continue, forest habitats in the area will become increasingly degraded. With the added fragmentation effects of the proposed action and continued deer impacts, this condition could lead to a loss of sensitive forest bird species (see Section 4.3.4). This would have a minor adverse impact on bird-watching opportunities.

4.5.5. Impacts of Alternative 1 - No Action

4.5.5.1. Health and Safety

Additional fencing and/or guardian animals, particularly near high visitor use areas, can adversely affect human health and safety. Humans coming into contact with electric fencing may be startled and experience temporary discomfort by the brief shock delivered by the fencing. Additionally, guardian animals could bite, startle, harass, or otherwise affect a person who gets too close to the fenced, guarded area. Also, despite measures to prevent it, guardian animals could escape enclosed areas and threaten people.

As the use of electric fencing and guardian animals is currently very limited and is not expected to increase significantly under this alternative, the adverse impact on human health and safety is considered negligible.

No discernable change in deer-vehicle accident rates or locations is expected under this alternative.

4.5.5.2. Nuisance Wildlife

Attraction of deer, woodchucks, raccoons, and geese to greater amounts of corn or other vulnerable crops under this alternative may cause increased crop damage, resulting in negligible to minor adverse impacts on farmers.

Some agricultural areas near wetlands are likely to be impacted by beaver activities despite buffer zones, either from flooding due to damming, or damage to crops and trees. Impacts from these localized and uncommon events would be negligible to minor, as management actions (e.g., removal of dams or beaver) would likely mitigate any impacts on private landholders or NPS lessees.

4.5.5.3. Visitor Use and Experience

Farming activities in the park help contribute to the rural and historical scene of the park. Some visitors come to the park to enjoy viewing and experiencing this setting. However, some visitors consider the presence of farming in a national park as an intrusion into a natural scene. While farming is expected to increase across the park, it will remain similar in type and methods currently used in the park. Livestock, new construction, and fencing will be limited, and few working farmsteads will be active. This lack of a qualitative change in farming look and appearances will result in negligible impacts on the scenic values and sense of place.

Additionally, visitors may find bird-watching and wildlife viewing opportunities increased in early successional habitats. The increase in mowed areas will provide additional habitat and areas where they might be more easily seen. Many species of birds, butterflies and other insects inhabit these areas. Deer grazing activities will be easier to observe, as they will use unfenced agricultural areas as well. These increased wildlife-viewing opportunities will result in minor beneficial effects.

4.5.5.4. Local Communities

Under Alternative 1, it is possible that families with school age children may reside in park properties under leases or other agreements. Changes in the number of school children residing on NPS properties would occur gradually over time and fluctuate. School districts would be required to make space for and educate these children without the benefit of local property taxes that usually would largely support associated costs.

An estimated 30 properties would be available for residential use under this approach. This is an increase of 3 from the current situation. Not all leases or agreements would include residential use. Some may be primarily related to recreational, business, agricultural, or other uses.

Additional children residing in NPS properties may not result in significant changes from the current situation for many school districts. While leased properties will increase in number under this alternative, this increase is directly proportional to the number of life estate and retention properties that are taken into full possession by the NPS. Conversion of these properties (especially the retention properties) to full NPS management may actually remove some children from local school districts. Impacts on potentially affected school districts are considered negligible, since few additional residential properties and at most a few children would be added to any one district.

Changes in local revenue from income taxes from residential, business, or agricultural uses would be expected under this alternative for the communities that collect such tax, especially from the 13 vacant properties that may be put back into use. These changes are expected to result in overall negligible to minor beneficial economical impacts on local communities.

The availability of additional lands for farming under SUP would have a minor beneficial effect on local farmers. A slight increase in the number of agricultural leases and farmers in the park is expected to have negligible impacts on existing farmers. Negligible effects on other local businesses are expected.

4.5.5.5.Cumulative Impacts

Continued growth in residential communities surrounding the park may place added pressures on the space available in the Woodridge School District, increasing the level of adverse impact of additional school children from NPS properties. Should the district build new facilities to house a larger student population in response to this growth, these impacts would be reduced.

4.5.5.6.Conclusion

The adverse impacts of Alternative 1 on human health and safety due to electric fencing, guardian animals, or deer-vehicle accidents are considered negligible. Impacts due to nuisance wildlife would be negligible to minor. Lack of a qualitative change in farming look and appearances will result in negligible impacts on the scenic values. Increased wildlife-viewing opportunities will result in minor beneficial effects. Negligible to minor economical beneficial effects are expected for local communities. Negligible effects on existing farmers and other local businesses are expected. The implementation of this alternative is not expected to lead to an impairment of the social environment of Cuyahoga Valley National Park.

4.5.6. *Impacts of Alternative 2 - Countryside Initiative (Preferred Alternative)*

4.5.6.1.Health and Safety

Similar impacts on human health and safety are expected under Alternative 2 as they are under Alternative 1. However, considerable use of electric fencing and guardian animals is expected under Alternative 2 due to the requirement that farm operations be economically sustainable. Farmers would undoubtedly use the best available technique to prevent crop and livestock losses.

Additionally, farmers under this alternative are encouraged to actively market and sell their products and are more likely to draw more visitors to their farms. This will increase the likelihood of a visitor's encounter with an electric fence or a guardian animal, despite precautionary measures taken to prevent this. As a result, the adverse impact on health and safety due to electric fencing and guardian animals under Alternative 2 is expected to be minor to moderate when compared to the current state.

Loss of habitat through land conversion and increased amounts of fencing is expected to affect distribution and movements of white-tailed deer. These changes could increase deer-vehicle accident rates in some areas as deer move more in search of adequate food resources. Overall, these changes would be a minor adverse impact.

4.5.6.2.Nuisance Wildlife

Loss of early successional and agricultural habitats through land conversion and subsequent fencing is expected to affect distribution and movements of white-tailed deer and coyotes. White-tailed deer will be forced to aggregate more on the few remaining open areas, including residential areas, as they move more in search of adequate food resources. Increased browse pressure on residential landscaping and gardens will increase the level of deer-human conflicts. Similarly, coyotes will be forced out of prime hunting areas and, being highly opportunistic, would likely increase use of residential areas for foraging. This would be expected to result in greater incidence of human-coyote conflicts. Other species, such as raccoons, woodchucks, skunks, opossums, and geese may also seek other areas for foraging, and exhibit similar tendencies to utilize residential areas more.

Residents may suffer losses in their vegetation and may incur costs for replacement of lost vegetation or deterrents such as fencing. Residents may be moved to increase lethal control measures or trapping of animals in response to these conflicts. Adverse impacts on park residents from increased conflicts with wildlife would be minor to moderate.

4.5.6.3.Visitor Use and Experience

Increased farming activities in the park may help contribute to the rural and historical scene of the park. Buildings will be used and lived in by long-term lessees, creating a lived-in landscape. Sustainable farming will include a wider variety of crops and livestock. A significant increase in the amount and types of fencing and some new construction is anticipated as well.

The increase and qualitative changes in farming in CVNP will help restore the historic, rural, and agricultural component of the landscape thereby increasing related scenic values. A greater 'sense of place' would be enhanced by this alternative. Working farmers would have a constant presence on the farms and in the valley. This alternative would allow the NPS to enhance the pastoral landscape in a very real way, as opposed to recreating a museum-type setting. Some visitors will experience moderate benefits from such changes.

However, they may detract from the scenery for visitors who prefer to see a more natural landscape. The increased farming activities, new construction, lighting, and increased livestock and fencing will have moderate adverse impacts on those visitors.

New fencing will be an obstacle to a visitor's ability to travel throughout the park. Some areas will be removed from public access. Visitors who choose to explore the park by walking on NPS land off trail, may be somewhat thwarted in their travels by additional fencing in the park. Minor adverse impacts on visitors are expected because of this new limitation.

An increase in the amount of farm-related activities (e.g., harvest festivals, fairs), the wider variety of farm products available for purchase in CVNP, and NPS ranger-led interpretive programs associated with the rural landscape and agricultural heritage will provide additional recreational opportunities for visitors. Moderate beneficial effects to visitors are expected.

Additionally, visitors may find bird-watching and wildlife viewing opportunities decreased in agricultural lands. Reduced opportunities for viewing early successional species may result from the conversion of many early successional or hayed areas to agriculture, although two large significant areas are being preserved. Additionally, deer that usually graze in open agricultural fields may be excluded from these fields by fencing, reducing the opportunity for visitors to view them. These decreased wildlife-viewing opportunities will result in moderate adverse impacts.

4.5.6.4. Local Communities

Impacts on local school districts similar to Alternative 1 are expected under this alternative. However, the impacts from this alternative are slightly greater due to the higher availability of residences and the focus on long-term agricultural leases.

An estimated 38 properties would be available for residential use under this approach. This is an increase of 11 from the current situation. Most of these would involve long-term leases with residential use rather than other types of uses. Therefore the likelihood of school age children residing in these properties is highest among the alternatives.

The greatest potential for impact exists for the Woodridge School District as most of the residential properties (74 percent) are found in that district. Woodridge School District's superintendent views every new child as a discrete significant impact due to this space limitation and the lack of local revenues from these NPS properties (McGuire 2002). Impacts on other potentially affected school districts are considered negligible since few additional residential properties and at most a few children would be added to any one district.

Woodridge School District may experience a net increase of approximately 8 residential properties (74 percent of 11 new residential properties). This district is likely to eventually harbor a large proportion of the new farmsteads (which include some now vacant properties) and possibly other new residential uses of park properties due to the high numbers available in this district. It may therefore be expected that 10-20 additional

children might be added to the school district gradually over the next 10 years, although this number would fluctuate based on graduations. Adverse impacts would be minor to moderate, increasing with added enrollment.

Changes in local revenue from income taxes from residential, business, or agricultural uses would be expected under this alternative for the communities that collect such tax, especially from the 13 vacant properties that may be put back into use. The emphasis on residential use and economically sustainable farm businesses may result in additional tax revenue when compared to Alternative 1. There is the potential for significant additional revenues coming into local communities, not only in the form of gross income, but also in the form of other related local spending by farmers and visitors. Local businesses may benefit from increased visitation. These changes are expected to result in overall minor to moderate beneficial effects on local communities.

The addition of 25-30 new farm businesses into the park will have impacts on other local farmers. Because the majority of the lands under Alternative 2 will be managed as long-term leases, the availability of lands for SUP farming will decrease over time. This could have a negligible to minor adverse economic impact on those local farmers who depend on NPS land for their business. The new farms could draw customers away from current farmers and grocery businesses by offering new and novel products for consumption. This competition could result in minor adverse impacts on local farmers. However, the visibility of the new Countryside Initiative program and the addition of new farms may increase the popularity of all farms in CVNP, increasing visitation and business for all local farmers. This could result in minor beneficial effects on local farmers.

4.5.6.5.Cumulative Impacts

Cumulative impacts of Alternative 1 also apply for Alternative 2. In addition, the continued loss of grassland and other open habitats in surrounding areas could exacerbate the bird-watching opportunity impacts by reducing the potential for recolonization.

4.5.6.6.Conclusion

Impacts on health and safety due to increased fencing and guardian animals will be minor to moderate under Alternative 2. Deer-vehicle accidents may increase, causing minor adverse impacts on visitors. Nuisance wildlife may lead to minor to moderate adverse impacts. Minor adverse impacts from limited access to park areas as a result of fencing are expected. Moderate beneficial effects are expected due to increased farm-related activities and programs.

The increase and qualitative changes in farming in CVNP will help restore the historic rural and agricultural component of the landscape thereby increasing related scenic values. The revitalization of an active, lived-in landscape will help enhance a 'sense of place' in the valley. Some visitors will experience moderate beneficial effects from such

changes. However, they may detract from the scenery for visitors who prefer to see a more natural landscape to view wildlife and birds; these visitors may experience moderate adverse impacts.

Woodridge School District may experience minor to moderate adverse impacts due to an increase in the number of school children. Overall minor to moderate beneficial effects on local communities are expected in the form of increased revenue from properties being put back into use and increased local spending. Local farmers and grocery businesses may experience minor adverse impacts from increased competition. Local farmers may experience negligible to minor adverse impacts because of a reduction in available SUP land, but they may receive minor beneficial effects from the visibility of the Countryside Initiative. Other local businesses may experience minor benefits from increased visitation. The implementation of this alternative is not expected to lead to an impairment of the social environment of Cuyahoga Valley National Park.

4.5.7. Impacts of Alternative 3 - Vista Management

4.5.7.1. Health and Safety

Alternative 3 is expected to have even less of an impact on health and safety than Alternative 1. The only anticipated use of fencing or guardian animals would be through farmers who already use them; little or no new fencing is expected. The amount of fencing might even be reduced as SUPs expire and those fields are then managed under the Vista Management approach. As a result, the adverse impacts on human health and safety are considered to be negligible. No effects on deer-vehicle accident rates are expected.

4.5.7.2. Nuisance Wildlife

Distributions of deer and coyotes likely would not change and thus human conflicts with these species would either remain the same or probably decrease because fewer agricultural landholders would be affected. Similarly, beaver activity would have little or no adverse impact on areas managed for scenic values and so would not lead to conflicts. Raccoons, woodchucks, and geese probably would have fewer conflicts with agricultural landholders. Overall adverse impacts on residents and farmers would be negligible.

4.5.7.3. Visitor Use and Experience

The significant reduction of farming in the park may have moderate adverse impacts on visitors who view agricultural activity, farmsteads, and fencing as valuable to the rural landscape. This may also have a negative effect on a visitor's sense of place. This reduction in farming activities and livestock may have moderate beneficial effects on those visitors who prefer to see a more natural landscape. No increase in fencing is

expected under this alternative, and fencing may actually diminish somewhat, resulting in negligible impacts on scenic or recreational values.

Additionally, visitors may find bird-watching and wildlife viewing opportunities increased in early successional habitats. The significant increase in mowed areas will provide additional habitat and areas where many species of birds, butterflies, and other insects could be seen. Deer grazing activities will be easier to observe, as they will use open fields as well. These increased wildlife-viewing opportunities will result in moderate beneficial effects.

4.5.7.4. Local Communities

Under Alternative 3, many properties (13 of 27; 48 percent) that now have residential uses (life estates, retentions, short-term park leases) are expected to be converted to non-residential uses as scene-setters. This would likely result in a net loss of school children residing on NPS properties and attending local schools. Negligible to minor benefits to currently affected local school districts are expected from this reduction.

Local communities that collect a local income tax on residents may experience a net decrease in income as currently occupied buildings are taken out of active uses. Adverse impacts on local communities would be negligible to minor as few properties are potentially affected in the taxing municipalities.

Because the majority of the lands under Alternative 3 will be managed for scenic values, the availability of lands for SUP farming will decrease and possibly be largely eliminated. This could have a minor to moderate negative economic impact on those local farmers who depend on NPS land for their business. Negligible effects on other local businesses are expected.

4.5.7.5. Cumulative Impacts

No additional cumulative impacts are expected beyond those outlined for all alternatives.

4.5.7.6. Conclusion

Alternative 3 is likely to have even less of an adverse impact on health and safety as Alternative 1. These impacts are considered to be negligible. No effects on deer-vehicle accident rates are expected. Impacts caused by nuisance wildlife would be negligible. The significant reduction of farming in the park may have moderate adverse impacts on visitors who view agricultural activity, farmsteads, and fencing as valuable to the rural landscape. However, moderate beneficial effects are expected for visitors who prefer a more natural landscape or enjoy wildlife viewing and birding. The reduction in residents would likely have negligible to minor benefits to affected local school districts, but

negligible to minor adverse impacts on local communities' tax bases. Local farmers who use NPS land may experience minor to moderate adverse impacts. Negligible effects on other local businesses are expected. The implementation of this alternative is not expected to lead to an impairment of the social environment of Cuyahoga Valley National Park.

4.5.8. Impacts of Alternative 4 - NPS Farming

4.5.8.1. Health and Safety

The impacts of electric fencing and guardian animals on human health and safety under Alternative 4 are expected to be similar to Alternative 1. Little or no new fencing is expected under this alternative, although it may be installed in a few cases by SUP farmers or for NPS demonstration or historical farms. Overall, these adverse impacts on health and safety are expected to be negligible.

Since agricultural uses would increase across the park with little added wildlife deterrence, deer populations could increase above current levels in response to greater food availability. This could result in more vehicle accidents and minor adverse impacts due to presence of more deer, but overall distributions of deer would not be expected to change significantly.

4.5.8.2. Nuisance Wildlife

Limited increases in SUP holders and long-term lessees would keep conflicts with crop-damaging wildlife from increasing significantly. Harassment and lethal control of deer and other wildlife would not be expected to increase from current levels. These changes would represent a negligible adverse impact on populations of these species.

4.5.8.3. Visitor Use and Experience

No significant qualitative changes in how farming appears in the park are expected. A basic increase in farming activities will have minor beneficial effects on visitors who view agricultural activity as valuable to the rural landscape and their sense of place. There will be minor adverse impacts for visitors who prefer a more natural landscape. Educational programs related to NPS farming activities might provide minor benefits to visitors as well.

Deer grazing activities will be easier to observe, as they are expected to increase in number and will use unfenced open fields as well. These increased wildlife-viewing opportunities will result in minor to moderate beneficial effects.

4.5.8.4. Local Communities

Impacts on school districts and local income tax revenues are the same as in Alternative 3.

Under this alternative, SUP farming will remain relatively the same over time, having negligible economic impact on local farmers. The addition of NPS farming would not increase competition and may benefit local farmers by increasing the visibility of farming activities in CVNP. Negligible to minor beneficial effects on local farmers may result. Negligible effects on other local businesses are expected.

4.5.8.5. Cumulative Impacts

No additional cumulative impacts are expected beyond those outlined for all alternatives.

4.5.8.6. Conclusion

Under Alternative 4, impacts on health and safety would be similar to Alternative 1. However, deer populations could increase above current levels in response to a greater amount of unprotected food. This could result in more vehicle accidents due to presence of more deer resulting in minor adverse impacts. Impacts due to nuisance wildlife would be even less than Alternative 1. The increase in farming activities will have minor beneficial effects on visitors who view agriculture as valuable. There will be minor adverse impacts for visitors who prefer a more natural landscape. Educational programs related to NPS farming activities might provide minor benefits to visitors as well. Increased wildlife viewing opportunities will result in minor to moderate beneficial effects. Impacts on school districts and local income tax revenues are the same as in Alternative 3. Finally, negligible to minor beneficial effects on local farmers may occur. Negligible effects on other local businesses are expected. The implementation of this alternative is not expected to lead to an impairment of the social environment of Cuyahoga Valley National Park.

4.5.9. *Irreversible or Irretrievable Commitments of Resources*

The possible local extirpation of some species associated with early and late successional habitats, combined with continued regional losses of these habitats could result in an irreversible loss of certain bird-watching opportunities.

4.5.10. *Loss in Long-term Availability or Productivity of the Resource to Achieve Short-term Gain*

None are expected.

4.5.11. Unavoidable Adverse Impacts

For visitors who value the park primarily for its natural areas and prefer to see areas of human disturbance being reclaimed by natural processes, the proposed action will have moderate adverse impacts. Additionally, visitors who value the park for its diversity of plants and animals may experience minor to moderate adverse impacts from decreased bird-watching and wildlife viewing opportunities.

Under Alternative 1 and 2, minor to moderate adverse impacts on the Woodridge School District may result from additional children in park properties.

Local communities may experience negligible to minor losses in local income tax revenues under Alternative 3 and 4.

5. CONSULTATION AND COORDINATION

5.1. PUBLIC INVOLVEMENT

The public and other agencies identified many environmental issues associated with the proposed action during the scoping process. A summary of public involvement in the initial scoping and planning activities is outlined in Section 1.4 of this draft EIS. A summary of major concerns raised during scoping is also found in that section. A full history of public scoping activities is found in Appendix C. Briefly, concerns about possible impacts from the proposed action on park cultural resources and landscapes, scenic values, wildlife and vegetation, water resources, and other natural resources were raised. Social issues such as public health and safety, changes in recreational opportunities, and economic impacts on local communities and school districts were also identified.

In addition to public scoping, numerous agencies and organizations have been consulted throughout the preparation of this document. A list of agencies and organizations consulted is found in Appendix C. In particular, cultural resource compliance for this project as required under Section 106 of the National Historic Preservation Act, as amended, has been initiated. Additionally, a preliminary consultation with the U.S. Fish and Wildlife Service was completed, and will continue as required in accordance with the Endangered Species Act.

Copies of the draft EIS are available by request by writing to Superintendent at the address below, by phone 440-546-5903, or by e-mail to cuva_superintendent@nps.gov. A downloadable on-line version of the document is available at: <http://www.nps.gov/cuva/management/rmprojects/ruraleis/>. Reference copies have been placed at several local libraries.

Comments on the DEIS must be received no later than 60-days after the Environmental Protection Agency publishes its notice of availability in the Federal Register. The formal closing date of this comment period will be made available on the park's web site once it is known. Public open houses for commenting on the DEIS will be announced in the local media and the park's web site when they are scheduled. Information about meeting time and place will be available by contacting the Park's communications center at 440-526-5256 or visiting the park's web site.

Readers are encouraged to send their comments on the draft EIS to:

Superintendent
Cuyahoga Valley National Park
15610 Vaughn Rd.
Brecksville, Ohio 44141

Telephone: 440-546-5903
Fax: 440-546-5905
E-mail: cuva_superintendent@nps.gov

5.2. AGENCIES AND ORGANIZATIONS THAT RECEIVED THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Federal Agencies

Army Corp of Engineers
Department of the Interior
 Fish & Wildlife Service
 National Park Service, Midwest Region Office
 National Park Service, Water Resources Division, Denver Service Center
Environmental Protection Agency

State and Local Agencies or Governments

Bath Township
Boston Township
City of Akron
City of Bedford
City of Brecksville
City of Cuyahoga Falls
City of Fairlawn
City of Hudson
City of Independence
City of Valley View
Cleveland Metroparks
County of Cuyahoga County
County of Summit County
Cuyahoga Soil and Water Conservation District
Metro Parks, Serving Summit County
Northfield Center Township
Ohio Department of Natural Resources
 Division of Natural Areas and Preserves
 Division of Parks and Recreation
 Division of Soil and Water Conservation
 Division of Wildlife
Ohio Department of Agriculture
Ohio Environmental Protection Agency
Ohio Historical Society (State Historic Preservation Officer)
Richfield Township
Sagamore Hills Township
Summit Soil and Water Conservation District
Village of Boston Heights
Village of Peninsula
Village of Richfield
Village of Walton Hills

Organizations or Universities

American Farmland Trust
Carriage Trade Farms
Center for Farmland Preservation in Northeast Ohio
Cleveland Museum of Natural History
Crooked River Herb Farm
Crown Point Ecology Center
Cuyahoga River Remedial Action Plan
Cuyahoga Valley Communities Council
Cuyahoga Valley Countryside Conservancy
Cuyahoga Valley National Park Association
Friends of the Crooked River
Greater Akron Audubon Society
Heritage Farms
Hunker Associates, Inc.
Northwestern University
Ohioan Ecological Food and Environment
Ohio & Erie Canal Corridor Coalition
Ohio Canal Corridor
Ohio State University, Ohio Agricultural Research and Development Center
Public Employees for Environmental Responsibility
The American Livestock Breeds Conservancy
The Nature Conservancy
University of Akron
University of Guelph (Ontario, Canada)
Western Reserve Historical Society
Woodridge School District

Tribes

Delaware Tribe
Delaware Tribe of Western Oklahoma
Eastern Shawnee Tribe of Oklahoma
Miami Tribe of Oklahoma
Ottawa Tribe of Oklahoma
Shawnee Tribe
Shawnee Tribe of Oklahoma
Seneca-Cayuga Tribe of Oklahoma
Seneca Nation - Tribal Historic Preservation Office
Wyandotte Nation

Congressional Delegates

The Honorable Sherrod Brown
The Honorable Mike DeWine
The Honorable Dennis Kucinich
The Honorable Steven La Tourette
The Honorable Ralph S. Regula
The Honorable Thomas Sawyer
The Honorable Stephanie Tubbs-Jones

The Honorable George Voinovich

Individuals

Judith Berzinsky
Robert Brewer
Dwight Chasar
Patrick Coy
David Dvorak Jr.
Dennis Krupa
Paul Labovitz
Ed Lockhart
James McIntyre
Ken & Wendy Mills
Janeen Orcutt
Gerald Polcen
Adam Rudolph
John Seiberling
Debra Shankland
Judy Teichman
Denis Vanek
Vicki L. Volkert-Gibson

Libraries

Cuyahoga County Library Branches
Brecksville Branch
Garfield Heights Branch
Independence Branch
Maple Heights Regional

Akron-Summit County Public Library
Main Branch
Nardon Hills Branch
Richfield Branch

Hudson Library and Historical Society
Peninsula Library
Taylor Memorial Public Library

Notification of Availability

A list of approximately 400 individuals and organizations that were mailed a notification of the availability of the EIS is available directly from the park.

5.3. PREPARERS AND CONTRIBUTORS

Name	Title/Responsibility	Education	Experience
NATIONAL PARK SERVICE, Cuyahoga Valley National Park			
Tom Bradley	Former Assistant Superintendent; EIS Team Member; oversight, general guidance, development of Alternatives	B.A. Economics	29 years NPS
Paulette Cossel	Historical Architect, review of historic structures	B.A. Architecture M.A. Architecture (Preservation)	17 years NPS
Eddie Dengg	Botanist; Vegetation	B.A. Biology J.D. (Juris Doctor)	6 years non-profit and local gov't conservation; 3 years NPS
Anthony Gareau	Biologist; geographic information systems, GIS data collection	B.S. Natural Resources M.S. Natural Resources Information Systems	15 years GIS and remote sensing; 12 years NPS
Darlene Kelbach	Landscape Architect; EIS Team Member, Cultural Resources, portions of Purpose and Need, development of Alternatives; summary tables, costs	B.A. Political Science M.L.A. (Landscape Architecture)	7 years NPS
Jennifer McMahon	Management Assistant; EIS Team Member, writer/editor, Summary, Social Environment, portions of Purpose and Need, development of Alternatives	B.S. Biology M.P.A. (Public Administration) - Environmental Policy	5 years private and non-profit sector; 2 years NPS
Karen Parsons	Secretary; logistical support	B.A. English Literature M.L.S. (Library Science)	1 year public library; 16 years NPS
Lisa Petit	Wildlife Biologist; Wildlife	B.S. Zoology M.S. Biology Ph.D Zoology	8 years federal research; 1 year NPS
Kevin Skerl	Ecologist; EIS Team Leader, Alternatives, Water Resources, Appendices, portions of Purpose and Need and Social Environment, maps and GIS analysis, costs	B.S. Wildlife Biology M.S. Conservation Biology & Sustainable Development	3 years non-profit conservation sector; 4 years NPS
Sam Tamburro	Historian, review of park history	B.A. U.S. History & Political Science M.A. U.S. History (Early Republic)	3 years non-profit sector; 4 years NPS
NPS CONSULTANT - Cuyahoga Valley Countryside Conservancy			
Darwin Kelsey	Executive Director; Sustainable and conventional farming practices, fencing uses	B.A. American and European History M.A. American Folk Culture	40 years non-profit sector w/ 30 years in agricultural programs; 3 years CVCC

6. REFERENCES

6.1. COMMONLY USED ACRONYMS

BUP – Building Utilization Plan
CA – Cooperative Agreement
CFR – Code of Federal Regulations
CI - Countryside Initiative
CLR – Cultural Landscape Report
CVCC - Cuyahoga Valley Countryside Conservancy
CVNP - Cuyahoga Valley National Park
EA – Environmental Assessment
EIS – Environmental Impact Statement
ESA – Endangered Species Act
EO – Executive Order
GIS - Geographic Information Systems
GMP – General Management Plan
HPLP – Historic Properties Leasing Program
LPP – Land Protection Plan
MOU – Memorandum of Understanding
NEPA – National Environmental Policy Act
NHL - Non-historic Lease
NHPA – National Historic Preservation Act
NPS – National Park Service
NRI – Nationwide Rivers Inventory
RFP – Request for Proposals
SUP – Special Use Permit

6.2. GLOSSARY

Action Alternative – Any alternative that is not the “no action” alternative; Alternatives 2, 3, and 4.

Active Management – Management actions that are currently in operation or effect.

Agricultural Easement – A type of easement where the park purchases the development rights of a private landholder within the park boundary to thwart any future development. Active use of these private lands is restricted to agricultural use for perpetuity. Typically, the private lands are large parcels that are presently or have been recently farmed where the private owner is interested in continuing to farm. The private farmer and CVNP cooperate to enhance the agricultural use of private lands for their mutual benefit. The farmer is compensated for development rights as well as any reduced crop yield, which can be directly attributed to the easement restrictions (NPS 1994b).

Agricultural Open Space – Open space used for agricultural purposes.

Allelopathy – The repression or destruction of plants from the effects of certain toxic chemical substances produced and released by other, nearby plants.

Brushhogging (a.k.a. bushhogging) - The act of mowing with a heavy-duty rotary mower that is capable of cutting brush, briars, brambles, and other woody vegetation.

Building – An enclosed structure with walls and a roof, consciously created to serve some residential, industrial, commercial, agricultural or other human use.

Character-defining Feature – A prominent or distinctive aspect, quality, or characteristic of a cultural landscape or historic structure that contributes significantly to its physical character.

Concession Contract – A type of short-term agreement that may be implemented to provide accommodations, facilities, and services necessary for public use and park enjoyment (NPS 1994a).

Conventional Agriculture (a.k.a. modern, mainstream, or industrial agriculture) – The dominant farming paradigm in America today. It is characterized by intensive use of capital and credit, consolidation of farms into fewer and larger units, rapid and pervasive mechanization, heavy reliance on chemical fertilizers and pesticides, and use of close confinement livestock systems.

Cooperative Agreement – A type of short-term agreement in which there is mutual interest and the principal purpose is to transfer money, property, services, or anything of value to the non-federal partner to stimulate or support a public purpose authorized by federal statute. In addition, the federal partner, CVNP, is required to be substantially involved during the performance of the contemplated activity (NPS 2001a).

Cultural Landscape – A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Curtilage – Land that is immediately surrounding the structures on a property.

Debitage – Debris or waste material derived from the manufacturing of prehistoric stone tools;debitage is always the most common artifact found and it is the chief indicator of an archeological site.

Early Successional (Young) Forest/Early Successional Habitat – Same as Older Fields.

Easement – A right, as a right of way, afforded to a person or other entity to make limited use of another's real property.

Ethnographic Resources – Basic expressions of human culture such as a site, structure, object, landscape, or natural resource feature. These resources are assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Ex situ – Removed from the original place and context, as in a museum.

Farm – A property composed of a farmstead and its associated fields.

Farmstead – A complex of farm related buildings such as a house, barns, and outbuildings.

Fee Simple – Absolute ownership of real property with unrestricted rights of disposition.

Field Acres – Acreage that is associated specifically with land that is classified as a field.

Forbs – Broad-leaved flowering plants.

Historic Character – The sum of all visual aspects, features, materials, and spaces associated with a cultural landscape or structure's history.

Historic Properties Leasing Program – A type of long-term agreement that provides for historic properties that are listed in or eligible for listing in the National Register of Historic Places to be leased for non-governmental uses that are consistent with the park's mission (NPS 1994a). The historic properties are offered through a request for proposal process and preferred lessees are selected.

Human Environment – The natural and physical environment, and the relationship of people with that environment.

Hydrophytic Vegetation – Plants that are often, if not always, associated with wet soils; one of the defining characteristics of a wetland area.

Improved Property – Property that has "improvements" (structures/buildings).

In situ – In the original place and context as related to archeological resources.

Integrity – The authenticity of a property or structure's historic identity, evinced by the survival of physical characteristics that existed during the historic or prehistoric period. The seven qualities of

integrity as defined by the National Register Program are location, setting, feeling, association, design, workmanship, and materials.

Land Exchange – This authority allows CVNP to trade lands under its control for those under the control of other governmental entities located within the boundaries of the park to meet mutual goals.

Life Estate – The owners of improved property acquired in fee by the park are entitled to retain the use and occupancy of the improvement along with a designated portion of land necessary to enjoy the improvement for life. Upon the death of all owners, the improved property will be turned over to the park.

List of Classified Structures (LCS) – A computerized, evaluated inventory of all historic and prehistoric structures having historical, architectural, or engineering significance in which the NPS has or plans to acquire any legal interest. Structures may include buildings, monuments, dams, canals, bridges, fences, roads, mounds, structural ruins, or outdoor sculpture. Typical LCS structures are over 50 years in age and are listed or potentially eligible for listing in the National Register of Historic Places.

Local Extirpation – A complete loss or extinction of a resident species within the park boundaries.

Long-term Agreements – These agreements are public-private partnerships that make buildings and land available for non-governmental uses that are consistent with park goals and are for greater than five-year terms and are not renewable.

Long-term Leasing – Leasing agreements that exist for 25 years or longer. In the past, long-term leasing authorities included the Historic Properties Leasing Program (HPLP) and non-historic leases. Recently, these leasing authorities have been combined and revised under New Leasing Regulations (2001).

Mixed-mesophytic – A characterization of the CVNP forest type that includes a variety of deciduous and coniferous tree species that are together adapted to moderate soil and climate conditions (i.e. not too wet, dry, cold, or hot).

Memorandum of Understanding – A type of short-term agreement documenting mutual assistance relationships where no funds are obligated (NPS 2001a). CVNP typically uses this type of agreement to manage park buildings (NPS 1994a).

Microtine – Refers to an assemblage of small rodent species.

National Environmental Policy Act (NEPA) – The law which requires detailed and documented environmental analysis of proposed federal actions that may affect the quality of the human environment.

National Heritage Corridor – A national designation intended to help local entities protect and use historic, cultural, and recreational resources for community benefits while raising regional and national awareness of their unique importance.

National Register of Historic Places (National Register) – The comprehensive list of districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the NPS under the authority of the National Historic Preservation Act of 1966.

New Leasing Regulations – Newly revised long-term leasing authority that combines previously separate historic and non-historic leasing regulations.

No-till Cultivation – A cultivation practice where the soil is left largely undisturbed from harvest to planting. Often, the soil is tilled initially for planting but then other no-till planting methods are implemented in succeeding years with minimal soil disturbance. Examples of no-till cultivation methods include frost-crack seeding, chisel plowing, drilling, or light disking.

Non-historic Lease – A type of long-term leasing agreement where non-historic properties may be offered through a bidding process whereby the low bidder is awarded the lease.

Older Fields – Areas in which the majority of the ground is covered with woody growth greater than six feet in height, with a few emergent trees of six to 20 feet in height developing above the shrub layer. These fields are typically vegetated with shrubs and young trees of up to six inches in diameter at breast height - (e.g., hawthorn (*Crateagus* spp.), red maple (*Acer rubrum*), wild cherry (*Prunus serotina*), oak (*Quercus* spp.), bigtooth aspen (*Populus grandidentata*) and white ash (*Fraxinus americana*)). Same as “early successional (young) forests” and “early successional habitat”.

Open Fields – Currently or recently managed fields (i.e., agriculture or mowed areas) and grassy meadows (e.g., recently disturbed sites) that are early in succession but do not possess significant shrub/sapling growth.

Open Space – An area that affords unobstructed passage or views. These areas are typically open fields, meadows, mowed lawns, or agricultural lands.

Outbuilding – A building separate but associated with a main building such as a shed, chicken coop, or privy.

Real Property – Property which is "real" estate (land vs. personal property).

Recruitment – Process by which individuals that are lost from a population are replaced by new ones.

Restrictive Covenant – The terms and conditions that accompany agreements where non-governmental parties assume ownership of NPS property (i.e.: land exchange or sell-back). The restrictive covenant ensures the preservation of a property’s significant historic or cultural features. Although the park does not retain the title to the property, it does hold restrictive covenant interest for perpetuity.

Retention – The owners of improved property acquired in fee by the park are entitled to retain the use and occupancy of the improvement along with a designated portion of land necessary to enjoy the improvement. The period of a retained interest is typically for a fixed term up to 25 years. Upon expiration of this term, the improved property is turned over to the park.

Rookery – A breeding place or colony of gregarious birds.

Rural Landscape – A cultural landscape characterized by lands and structures modified by humans for farming or agricultural use.

Scene-setter – Buildings that strictly add to the aesthetics of the park as features of the cultural landscape without any operational function.

Scenic Byway – A national and/or state designation of a road or highway that offers an enjoyable and relaxing experience for travelers and possesses scenic, historic, cultural, natural, archeological, and recreational resources.

Scoping – An information collection process by which all relevant issues and concerns, as well as alternatives to a proposed federal action, are collected. This process includes the review of all relevant planning and management documents, consultation and discussion with interested agencies and organizations, and public input.

Sell-back – When Cuyahoga Valley was a National Recreation Area, this authority allowed the park to sell historic properties to non-federal parties with restrictive covenants (NPS 1994a). However, now that Cuyahoga Valley is a National Park, this authority is no longer valid as national parks do not have sell-back authority.

Sense of Place – A sense of orientation and emotional attachment to the unique character, qualities, values, and spaces of a specific place.

Short-term Agreement – These agreements are public-private partnerships that make federally-owned buildings and land available for non-governmental uses that are consistent with park goals and are granted for less than a five-year period on a renewable basis.

Shrub – A low, usually several stemmed, woody plant. Not a sapling or tree.

Sidedress Fertilizer – Fertilizer that is applied in small quantities directly along side plants/crops, rather than widely dispersed.

Special Use Permit – A type of short-term agreement. CVNP uses these permits to lease farm buildings primarily for residential purposes although a few barns, garages, or other outbuildings are specifically leased for agricultural purposes. SUP land use is typically for agricultural fields.

Succession – The natural, sequential change associated with plant and animal species in a given area (e.g., grassy field to shrubby field to young forest to mature forest).

Sustainable Agriculture – A generic term used to identify a diverse set of farming practices, including organic, biointensive, biodynamic, permaculture, holistic, civic, integrated, and low-input practices. It advocates more and smaller farms; limited capitalization and limited use of credit; selective appropriate mechanization; replacement of most agricultural chemicals with biological, cultural, and mechanical alternatives; and grass-based, free-range livestock systems. Equally importantly, sustainable agriculture rejects the assumption that maximizing short-term economic profit is an overriding end that constrains all decision-making. To be truly sustainable, agriculture

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must be economically profitable, socially responsible, and ecologically healthy. See Appendix E for a more detailed discussion.

Tract – An independent land parcel identification system used by the National Park Service.

Vista Management – Management that focuses on scenic values rather than functional values.

Young Forest – Same as early successional forest.

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APPENDIX A - RURAL LANDSCAPE PROPERTIES WITH ASSOCIATED STRUCTURES

This appendix contains the compiled inventory information for all properties with structural components of the rural landscape in Cuyahoga Valley National Park, Ohio and the management methods that apply to them. Properties that are on the National Register of Historic Places are indicated. A full explanation for this table is found in Section 1.2.4.5.

Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
Available - High Potential Farmstead Properties						
1 Cull Barn	Bath Twp.	Revere	118-32		1	SUP
2 Martin	Bath Twp.	Woodridge	116-26		3	None
3 Dickenson-Pittenger	Boston Twp.	Woodridge	115-33		6	MOU
4 Duffy	Boston Twp.	Woodridge	115-35	Y	7	None
5 Hazlett	Boston Twp.	Woodridge	120-12		1	RET
6 Hopkins-Congar	Boston Twp.	Woodridge	109-107	Y	4	SUP
7 Kurowski Barn	Boston Twp.	Woodridge	109-09		1	None
8 Noland	Boston Twp.	Woodridge	112-25		3	SUP
9 Point	Boston Twp.	Woodridge	114-63	Y	4	NPS/SUP
10 Robertson	Boston Twp.	Woodridge	119-45		5	LE
11 J. Clayton Stanford	Boston Twp.	Woodridge	109-103	Y	4	LE
12 Welton	Boston Twp.	Woodridge	112-65	Y	3	None
13 Hrabak	Brecksville	Brecksville	103-53	Y	4	None
14 Volkert	Brecksville	Brecksville	107-04		2	SUP
15 Carroll	Cuyahoga Falls	Woodridge	117-15		2	RET
16 Grether	Cuyahoga Falls	Woodridge	117-20		2	None
17 Muranyi	Cuyahoga Falls	Woodridge	121-55		1	RET
18 Underwood	Cuyahoga Falls	Woodridge	122-45		5	SUP
19 Garvey-Ross	Peninsula	Woodridge	118-51		4	RET
20 Holland	Peninsula	Woodridge	113-01		1	SUP
21 Lindley Barn	Sagamore Hills	Woodridge	107-35		1	None
22 Gleeson	Valley View	Cuya. Hts.	123-03	Y	7	NPS/SCEN/SUP
23 Kukoleck	Valley View	Cuya. Hts.	123-08		3	RET
Available - Low Potential Farmstead Properties						
24 Homestead	Boston Hts.	Woodridge	113-02		3	NPS
25 Jyurovat	Boston Hts.	Woodridge	113-27	Y	5	CA
26 Carl Boodey	Boston Twp.	Woodridge	109-43		2	RET
27 Kenneth Boodey	Boston Twp.	Woodridge	109-99	Y	3	LE
28 Chamberlain	Boston Twp.	Woodridge	114-47	Y	1	NPS
29 Duncan	Boston Twp.	Woodridge	114-72	Y	1	NPS
30 Fink	Boston Twp.	Woodridge	112-24		4	SUP
31 Gifford	Boston Twp.	Woodridge	114-55		2	NPS
32 Gillette	Boston Twp.	Woodridge	120-13		2	NPS
33 Gracey	Boston Twp.	Woodridge	114-41	Y	1	SCEN
34 Hardy	Boston Twp.	Woodridge	114-50	Y	1	NPS

Key: AE - Agricultural Easement; CA - Cooperative Agreement; Conc. Contract - Concession Contract; HPLP - Historic Properties Leasing Program; LX - Land Exchange; LE - Life Estate; MOU - Memorandum of Understanding; NHL - Non-historic lease; None - No current uses; NLR - New Leasing Regulations; NPS - Park Utilization; RET - Retention; SCEN - Scene-setters; SUP - Special Use Permits.

Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
Available - Low Potential Farmstead Properties (continued)						
35 Johnston-Rodhe	Boston Twp.	Woodridge	118-77	Y	5	RET
36 Lavicka	Boston Twp.	Woodridge	114-46		2	NPS
37 Muar	Boston Twp.	Woodridge	114-54	Y	2	NPS/SCEN
38 Osborne	Boston Twp.	Woodridge	114-53	Y	2	NPS
39 Richardson	Boston Twp.	Woodridge	114-57	Y	2	NPS
40 Schmidt	Boston Twp.	Woodridge	114-42	Y	6	None
41 Stewart-Sager	Boston Twp.	Woodridge	114-52	Y	3	NPS/SCEN
42 Szalay	Boston Twp.	Woodridge	114-56		2	SUP
43 Tilden	Boston Twp.	Woodridge	108-03	Y	1	HPLP
44 Coonrad	Brecksville	Brecksville	107-31	Y	4	NPS/SCEN
45 Huefner Barn	Brecksville	Brecksville	106-06		1	NPS
46 McCreery	Brecksville	Brecksville	103-89		4	None
47 Conway	Cuyahoga Falls	Woodridge	115-42		6	LE
48 Lapchynski	Independence	Independ.	126-02		6	RET
49 Johnson	Northfield Cntr.	Nordonia	109-71		2	SUP
50 Rudolph	Peninsula	Woodridge	119-46		2	RET
51 Cofta	Richfield Twp.	Revere	108-21		5	None
52 Levoyer	Richfield Twp.	Revere	111-40		3	RET
53 Shafer	Sagamore Hills	Woodridge	107-43		4	LE
54 Zeller	Sagamore Hills	Nordonia	105-33		3	LE
55 Birth	Valley View	Cuya. Hts.	123-19	Y	1	None
Available-No Potential as Farmstead Property						
56 Szczudlo	Brecksville	Brecksville	106-09		5	None
57 Krimmer	Boston Twp.	Woodridge	114-44		4	None
58 Packard-Doubler	Independence	Independ.	126-20	Y	1	HPLP
No Change in Management Planned						
59 Cranz	Bath Twp.	Revere	120-33	Y	7	LX
60 Hammond-Cranz	Bath Twp.	Revere	120-55	Y	7	HPLP
61 Hine House	Bath Twp.	Revere	116-18		3	NPS/SCEN
62 Schmidt-Foster	Boston Hts.	Woodridge	110-34		3	CA
63 Clayton Stanford	Boston Twp.	Woodridge	109-39		1	CONC
64 EEC Admin.	Boston Twp.	Woodridge	114-05		3	NPS
65 General Store	Boston Twp.	Woodridge	114-48	Y	3	NPS/SCEN
66 George Stanford	Boston Twp.	Woodridge	109-66	Y	4	CONC
67 Hawkins	Boston Twp.	Woodridge	114-49	Y	5	NPS/SCEN
68 Kepner	Boston Twp.	Woodridge	114-51	Y	1	NPS
69 Lipscomb	Boston Twp.	Woodridge	119-42		3	NPS
70 Schulze Barn	Boston Twp.	Woodridge	113-45		1	NPS
71 Delahanty	Boston Twp.	Woodridge	112-16		2	AE
72 Wetmore-Pittenger	Boston Twp.	Woodridge	119-34		5	NHL
73 White Pines	Boston Twp.	Woodridge	114-39		3	NPS
74 Fabbeo Barn	Brecksville	Brecksville	107-11		1	NLR

Key: AE - Agricultural Easement; CA - Cooperative Agreement; Conc. Contract - Concession Contract; HPLP - Historic Properties Leasing Program; LX - Land Exchange; LE - Life Estate; MOU - Memorandum of Understanding; NHL - Non-historic lease; None - No current uses; NLR - New Leasing Regulations; NPS - Park Utilization; RET - Retention; SCEN - Scene-setters; SUP - Special Use Permits.

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Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
No Change in Management Planned (continued)						
75 Leyser	Brecksville	Brecksville	106-05		2	NLR
76 Vaughn	Brecksville	Brecksville	106-03	Y	5	NLR
77 Botzum	Cuyahoga Falls	Woodridge	116-32	Y	7	HPLP
78 Brown-Bender	Cuyahoga Falls	Woodridge	121-62	Y	4	HPLP
79 Himelright	Cuyahoga Falls	Woodridge	117-30		3	AE
80 Hunt Farm	Cuyahoga Falls	Woodridge	121-05	Y	4	NPS/SCEN
81 Parry Howe Meadow	Cuyahoga Falls	Woodridge	117-28		2	NLR
82 (formerly SES)	Cuyahoga Falls	Revere	121-30		1	NPS
83 Kurtz	Independence	Independ.	126-45		4	AE
84 Haramis	Peninsula	Woodridge	112-78		5	AE
85 Wallace	Sagamore Hills	Nordonia	107-89	Y	3	HPLP

Key: AE - Agricultural Easement; CA - Cooperative Agreement; Conc. Contract - Concession Contract; HPLP - Historic Properties Leasing Program; LX - Land Exchange; LE - Life Estate; MOU - Memorandum of Understanding; NHL – Non-historic lease; None - No current uses; NLR - New Leasing Regulations; NPS - Park Utilization; RET - Retention; SCEN - Scene-setters; SUP - Special Use Permits.

APPENDIX B - RURAL LANDSCAPE MANAGEMENT POLICIES, PROTOCOLS, AND MONITORING

All rural landscape management activities in Cuyahoga Valley National Park will follow the policies and protocols outlined below.

A. Agricultural Practices

All agricultural practices in CVNP will conform to the policies and guidelines of the NPS and the agricultural guidelines of the State of Ohio. No agricultural use or activity will be allowed that would cause unacceptable impacts on a park's resources, values, or purposes. Furthermore, all agricultural activities and livestock operations that take place in national parks are to be conducted in accordance with accepted, best management practices that protect vegetation, and wildlife and its habitat, safeguard sensitive species, control proliferation of exotic species, conserve soil, protect riparian areas and ground water, avoid toxic contamination, and preserve cultural sites. Relevant public health and safety regulations regarding food service and distribution will apply as detailed in NPS Director's Order #83: Public Health and NPS Management Policies (NPS 2001e).

Sustainable Agriculture – Farmers that are required by their lease agreement to farm using sustainable agricultural techniques will follow the guidance provided in *Appendix E - Production Practices for Sustainable Agriculture*.

Pest Management/Pesticide Use - Standard Integrated Pest Management (IPM) practices and NPS-approved pesticide applications are required for all pesticide uses in the park (NPS 2001e). NPS IPM guidelines promote cultural and biological means of pest control over chemical means. Cultural control measures include such practices as crop rotation, companion planting, manual removal of pests. Biological pesticides (e.g., *Bacillus thuringiensis*, milky spore, beneficial fungi), control agents such as predators or parasites (e.g., ladybugs, aphid wasps) and bio-engineered products or crops (e.g., *B.t.-corn*) are subject to the same IPM review process as pesticides (NPS 2001e). Some agents may require additional NEPA compliance before approval.

Use of Water Resources - Use of surface waters and groundwater will comply with NPS Management Policies (NPS 2001e; Section 4.6.2), Ohio water rights laws, and Ohio EPA guidelines. A reasonable use doctrine will be followed to ensure that park uses of waters do not adversely affect downstream uses.

Wildlife Deterrents - Visual and audio deterrents and guardian animals (e.g., dogs, llamas, donkeys) will be permitted on leased areas, but NPS approval is required in each case to minimize effects on aesthetics, visitor safety, and wildlife. Guardian animals will be permitted only within fenced areas.

Artificial Housing - Some small-scale artificial housing/feeding is expected near occupied buildings (e.g., bird feeders, birdhouses). No other feeding of wildlife will be permitted.

Farming of Woodlands - The farming of woodlands (e.g., syrup production, mushrooms, medicinal plants) is not currently planned. If such activity were to be considered in the future it would be examined in another NEPA document. However, tapping trees that are clearly within leased yards and fields would usually be permitted.

Open Fires - Open fires (e.g., burning of fields or brush piles) are not permitted by local ordinances and for safety reasons. CVNP currently does not use prescribed fire as a management tool. If fire were ever to be used to manage habitats in CVNP, a revised Fire Management Plan would be drafted with standard environmental and cultural resource compliance and review procedures. Recreational contained fires (e.g., campfires and barbecues) may be permitted with the approval of the Superintendent and relevant local authorities when applicable.

Composting - Composting will be located so as not to detract from the natural scene and done outside of buffers to wetlands and surface waters. All plans for composting will be approved by CVNP through annual farm operating plans. Additionally, the preferred method for disposal of dead livestock will be on-farm composting. Farmers must be certified to conduct on-site livestock composting through completion of the Ohio State University Extension program "Livestock Mortality Composting Educational Training" as outlined by Ohio Department of Agriculture guidelines.

Beekeeping - Traditional honeybee keeping may be approved. Honeybees have become naturalized and perform important ecosystem functions. The use of exotic species of bees would require NPS approval and additional environmental compliance activities.

Harvesting Wood - Collecting wood on park property is generally prohibited under 36 CFR 2.2(a)(4). However, the Superintendent may give written permission to collect downed firewood for personal use by lessees. Collecting wood outside leased properties is not permitted.

Special Events - Any events (e.g., barn dances, concerts, rally days, overnight camping) planned by non-NPS entities require individual Special Use Permits and NPS approval.

B. New Construction

Construction Activities - As with any other activity within the park, proposals for additions or modifications to structures or the landscape (e.g., outbuildings, fencing, bridges, farm ponds) will require approval by the NPS. All standard review and compliance procedures will apply. Changes to the landscape and structures will generally be more restricted on historic properties.

Farm Fencing - The preservation, restoration, and construction of farm fencing will follow the guidance provided in Appendix G - Farm Fencing in Cuyahoga Valley National Park.

C. Natural Resource Protection

Wetland and Riparian Areas - Livestock will not be permitted in open waters or wetlands. Establishing appropriate protective buffer zones will also protect all rivers, streams and wetlands. The park has developed protection plans that assign wetland buffer sizes based on wetland quality and riparian buffer zone sizes depending on drainage area (NPS 2002a; NPS 2002b). These buffer plans are summarized in Appendix H. Farming activities and development will be prohibited within established buffer areas except as outlined in the plans.

Exotic and Invasive Species - The introduction of exotic species into national parks is prohibited by NPS policy and EO 13112. All crop selections and livestock must be approved by the NPS. The park will support most efforts to remove or control exotic species in and around rural landscape components. Any such activity would need to be part of an approved park plan and would require prior NPS coordination and approval.

Cuyahoga River Course - The natural meander of the river and its tributaries will be left unimpeded except in cases where it threatens a significant and unique park resource (i.e., railroad, Towpath trail, structures). Undoubtedly some open space suitable for agriculture will be both lost and gained over time through this process.

Topographic Changes to Lands - No changes in topography (e.g., grading lands, widening drainages, etc.) will be permitted, except where permitted for approved farm pond construction.

D. Monitoring Efforts

In order to assure that agricultural activity conforms to these policies and protocols, the following monitoring efforts will be implemented:

- An interdisciplinary NPS committee was created to oversee and review agricultural plans and activities in the park.
- The NPS Historical Architect will conduct annual inspections to assess the condition of historic fabric to ensure that properties are being preserved adequately.
- NPS cultural landscape staff will conduct annual farm visits to ensure the preservation and protection of the rural landscape. Farms will be assessed for undocumented changes to the landscape in agricultural fields and curtilage. In addition, the general condition of farm landscapes will be assessed to ensure adequate upkeep.
- NPS Resources Management staff will inspect wetland and riparian buffer boundaries adjacent to agricultural lands annually through site visits during the growing season.

- The Cuyahoga Valley Countryside Conservancy (CVCC) has broad monitoring responsibilities for Countryside Initiative farmers. CVCC staff maintains close contact with lessees, normally visiting farms several times each month to observe operations, and to offer guidance on management issues. In addition to such continuous, informal monitoring, CVCC more formally assists lessees' preparation of an Annual Operating Plan, and an Annual Operating Review. Thereafter, CVCC helps CVNP evaluate these documents for compliance with park policies and guidelines. While CVCC has a general oversight function for all aspects of lessee farm use, it is particularly responsible for observing and comparing their production practices with commonly accepted standards for sustainable agriculture.
- NPS staff, cooperators and independent researchers will continue to research and monitor natural resources in and around agricultural areas. The park will encourage and support new projects that examine the effects of agricultural activities on natural resources and identify important ecological indicators. Several such agricultural research projects are currently underway or planned.

APPENDIX C - SUMMARY OF SCOPING AND PUBLIC PARTICIPATION

A. Formal Public Scoping Activities

The following scoping activities related to rural landscape management have occurred.

April 2001	Environmental Assessment process begins. NPS initiates an Environmental Assessment (EA) to address the proposed changes in rural landscape management.
May 2001	Scoping Initiated. Scoping letters requesting input on issues and alternatives for the EA mailed to approximately 50 agencies and organizations. Press releases sent to major media outlets. Press coverage included an article in <i>Akron Beacon Journal</i> . Twenty written comments were received.
July 2001	Environmental Impact Statement initiated. The NPS decided an Environmental Impact Statement (EIS) was more appropriate to assess the proposed action. All scoping materials from the EA were kept for the EIS.
July 27, 2001	Notice of Intent published in <i>Federal Register</i>. Notice suggested a range of alternatives, noted that public meetings would be scheduled, and directed the public to a special park website for the EIS. A 45-day public comment period began.
August 3, 2001	Scoping process initiated. A press release to approximately 160 local media contacts and 400 individuals announced the public meetings to be held Aug. 22, 2001. Press coverage included an article in <i>Akron Beacon Journal</i> . The press release and the summary of issues and alternatives identified during the EA scoping process were made available on the park website. Letters specifically requesting input were mailed to 83 natural and cultural resource agencies, agricultural groups, local municipalities, universities, organizations and to 26 individuals.
August 22, 2001	Public open houses held. Two meetings held at Boston Store, Boston Ohio. The open house format provided information on the proposed action, possible alternatives, and a summary of issues already identified. Approximately 40 people attended the meetings.
September 11, 2001	Scoping Period Closed. Public input accepted until September 11, 2001. Seventeen additional written comments were received.
Winter 2002-2003	Notice of Availability submitted to <i>Federal Register</i> by NPS. The NPS Notice initiates the public review process for the Draft EIS. The subsequent Notice of Availability placed in the Federal Register by the US EPA begins the official 60-day public review period.

B. Groups Contacted During Scoping Activities

The following agencies, organizations, tribes, businesses, and municipalities either participated in preliminary or formal scoping activities directly or were invited to do so by the NPS. Members of some groups participated in discussions, attended meetings, or submitted written comments. Other groups were directly encouraged to participate in scoping through letters from the park Superintendent requesting input.

Akron Optimist Club	Heritage Farms
American Farmland Trust	Hunker Associates, Inc.
Animal Protection Institute	Lake Farmpark
Army Corp of Engineers	Luther Farms
Bath Township	Medina Summit Land Conservancy
Blossom Music Center	Metro Parks, Serving Summit County
Boston Mills/Brandywine Ski Resorts	Miami Tribe of Oklahoma
Boston Township	Northfield Center Township
Boy Scouts of America	Oberlin College
Brandywine Golf Course	Ohio Department of Natural Resources
Brandywine Inn	Division of Natural Areas and Preserves
Carriage Trade Farms	Division of Parks and Recreation
Center for Farmland Preservation in Northeast Ohio	Division of Soil and Water
Church in the Valley	Division of Wildlife
City of Akron	Ohioan Ecological Food and Environment
City of Bedford	Ohio & Erie Canal Corridor Coalition
City of Brecksville	Ohio Audubon Society
City of Cuyahoga Falls	Ohio Canal Corridor
City of Fairlawn	Ohio Department of Agriculture
City of Hudson	Ohio Ecological Food and Farming Association
City of Independence	Ohio Environmental Protection Agency
City of Valley View	Ohio Greenways
Cleveland Metroparks	Ohio Historical Society
Cleveland Museum of Natural History	Ohio Horseman's Council
Cleveland State University	Ohio State University, Agroecology Mgmt. Program
County of Cuyahoga County	Ohioans for Animal Rights
County of Summit County	Ottawa Tribe of Oklahoma
Crooked River Herb Farm	Phillis Wheatley Association
Crown Point Ecology Center	Reed Orchards
Cuyahoga River Remedial Action Plan	Richfield Township
Cuyahoga Valley Communities Council	Sagamore Hills Township
Cuyahoga Valley Countryside Conservancy	Shawnee Tribe
Cuyahoga Valley National Park Association	Shawnee Tribe of Oklahoma
Cuyahoga Valley Scenic Railroad	Seneca-Cayuga Tribe of Oklahoma
Cuyahoga Valley Trails Council	Seneca Nation - Tribal Historic Preservation Office
Delaware Tribe	Sierra Club - Portage Trail Group
Delaware Tribe of Western Oklahoma	Stanford House Hostel
Dover Lake Waterpark	Summit Soil & Water Conservation District
Ecophilia	The American Livestock Breeds Conservancy
Eastern Shawnee Tribe of Oklahoma	The Fund For Animals
Foote's Valley Farms	The Humane Society of the United States
Friends of the Crooked River	The Nature Conservancy
Friends of Wetlands	University of Akron
Greater Akron Audubon Society	University of Guelph
Hale Farm & Village	

United States Department of Agriculture, Forest
Service

United States Department of the Interior
Fish & Wildlife Service
National Park Service, Midwest Region Office
National Park Service, Water Resources
Division, Denver Service Center

United States Environmental Protection Agency

Valley View Village Church

Village of Boston Heights

Village of Peninsula

Village of Richfield

Village of Walton Hills

Western Cuyahoga Audubon Society

Western Reserve Girl Scout Council

Western Reserve Historical Society

Western Reserve Resource Conservation & Development Council

Wilson Feed Mill

Wyandotte Nation

APPENDIX D - DEFINING MANAGEMENT GOALS FOR THE RURAL LANDSCAPE IN CUYAHOGA VALLEY NATIONAL PARK

The rural landscape in Cuyahoga Valley National Park is composed of agricultural open space and associated structures. Federally-owned lands and structures existing within the boundary of CVNP are the subject of this EIS. Earlier inventories of these resources were completed in the 1987 CLR and 1994 BUP. Since the earlier inventories, additional lands and structures have been acquired, in some cases outside of the earlier park boundary. In some areas, succession has been permitted to occur, reducing the amount of available open land. Buildings have been lost to disuse and decay or demolition. These changes have left CVNP with a slightly different set of rural landscape components than those identified in earlier planning documents. Available open space and structures that may be utilized for rural landscape management activities are described and defined in this Appendix.

Park-wide Open Space Inventory

An inventory of open space was conducted in 2001 to identify open space in the park. Open space was broadly defined as areas that could be characterized as areas of current or recent agricultural use, areas kept open through periodic mowing, and early successional habitats dominated by herbaceous vegetation and no or few mature trees. Open space was first identified through the examination of 1994 digital aerial photography (orthophotoquads) with some subsequent field verification.

Approximately 4,100 acres of open space were identified within the park boundary. More than half of these areas are known or believed to be actively managed by the NPS or other public and private landowners through mowing or agriculture (a better estimate is not possible as management regimes by non-NPS entities are not well-documented.)

Potential Agricultural Open Space on Federal Land

From this broad open space inventory, federal lands were identified that may contribute to the rural landscape. Areas specifically kept open for non-agricultural purposes (e.g., mowing for visibility or recreational use) were generally excluded from the analysis, except when these areas were identified as contributing to an agricultural theme in the CLR.

Apparent open space that was immediately found to have significant natural resource conditions (e.g., predominance of wetlands) or isolation from other agricultural elements, which would likely prohibit its use as an agricultural area, was omitted. Additionally, intentional efforts were made to reduce the amount of shrub habitat that would be included in the inventory. Some large areas composed of primarily shrubby vegetation were omitted from the inventory in order to preserve the habitat quality and value of this limited park resource.

The boundaries of many of these open areas (52 percent) were eventually digitized using Global Positioning System receivers to improve the accuracy of the inventory. The boundaries of the remaining areas were estimated by manually digitizing open space areas from the aerial photos.

A total of approximately 1,345 acres of open space were identified on approximately 18,500 acres of federal land (7 percent). The maps at the end of Chapter 2 depict the location of these areas. A total of 208 open areas ranging in size from 0.009 acre to 75.5 acres in size (mean = 6.2 acres) were identified.

Management Goal for Agricultural Open Space

Cuyahoga Valley National Park proposes to manage these 1345 acres as part of the park's rural landscape. An explanation of how this goal was determined follows and is summarized in Table A1.

The GMP for the park indicated that the preservation of agricultural use as it existed when the park was created was a primary goal of the park. However, a full inventory of agricultural resources in the park was not completed for the GMP. A rough estimate using a 1974 land cover classification (Mosure-Fok et. al 1975) indicated that approximately 3.8 percent of the Cuyahoga Valley area could be classified as cultivated land or orchard (NPS 1976). This rough assessment did not present an entirely accurate representation of what existed on the ground. Indeed, further study and more accurate inventories of the resources were mandated in the GMP.

The 1987 CLR was completed to identify significant elements of the cultural landscape (NPS 1987a). The CLR identified 185 property tracts within the park boundary that contributed primarily to an agricultural theme. Agriculture may have been an important secondary theme on other property tracts, but these tracts were identified in the CLR as primarily contributing to other major themes in the park: prehistory, settlement, transportation, industry, or recreation. The NPS did not own or manage all of these tracts in 1987. Estimated open space acreage was provided only for tracts that the NPS owned and managed at that time. Approximately 1160 acres of agricultural open space were identified on 98 federal tracts (Table A1).

When comparing the 2001 open space inventory to the 1987 CLR, an additional 390 acres of agriculturally significant open space can now be included as primarily contributing to the agricultural theme. This new acreage has become available through land acquisition or the expiration of retentions and life estates since 1987. Combining the 1987 acreage and the acreage acquired since 1987 results in a total of approximately 1550 acres. However, approximately 615 of the original 1160 acres (53 percent) managed by the NPS in 1987 are no longer considered open space or were transferred into private management through sell-backs or land exchanges, leaving only approximately 935 acres of agricultural open space identified in the CLR available today.

Table A1. Summary of Agricultural Open Space Management Goal

<u>Description</u>	<u>Acreage</u>
Original Acreage On 1987 CLR Lands	1160
CLR Acreage Gained Since 1987	<u>+390</u>
<i>Total CLR Potential Lands</i>	<i>1550</i>
CLR Acreage Lost Since 1987	<u>-615</u>
<i>Total CLR Lands Currently Available</i>	<i>935</i>
Additional Open Space Currently Available	<u>+410</u>
<i>Total Agricultural Open Space</i>	<i>1345</i>

Clearly, large areas of agriculturally significant land have been lost over time to succession. To restore and rehabilitate the rural landscape, reopening these areas for agriculture is a possible option. Areas that have moved into succession could be cleared and reestablished as part of the rural landscape, but this would result in significant undesirable impacts on the natural environment. This option will not be considered for reasons outlined in EIS Section 2.9. Replacing the lost acreage with open space currently available is a more reasonable approach to the restoration and rehabilitation of the rural landscape that minimizes any interference with natural processes. The open space inventory identified an additional 410 acres of currently open space not originally identified in the CLR as being primarily significant to the agricultural theme. Since much of the Cuyahoga Valley was farmed in the past, it is reasonable to assume that agriculture was at least a secondary theme in many of these areas. Therefore, CVNP will use this additional open space to help restore and revitalize the rural landscape.

In summary, agricultural open space is defined for this draft EIS to be approximately 1345 acres of federal land, comprised primarily of agricultural areas identified in the CLR that remain open and supplemented by other current open space. Currently, the NPS manages approximately 740 acres using one of the methods described in EIS Section 1.2.4.5. The remaining areas of available open space are not currently managed by the NPS.

Rural Landscape Structure Inventory

In determining which existing structures under the management of CVNP contribute to the rural landscape, information was compiled from the 1987 CLR, 1994 BUP, Everett Historic District CLR (NPS 1995), and the CUVA Structures Update (NPS 2001b). From this information, a list was generated of tracts and properties contributing to the rural landscape. This list includes tracts and properties within the park boundary on both federally-owned land and non-federal land where the park has a management interest.

Site visits were then conducted and property records were referenced to determine the number of existing structures per property. The properties and structures were then classified by management method.

This classification not only depicts how properties and structures are being currently managed but it also shows more generally which buildings are used vs. not used in the park.

A total of 85 properties contribute to the rural landscape in CVNP. These properties consist of 267 structures. Non-federal property owners (i.e., agricultural easements and land exchanges) utilize 21 structures. The remaining 246 structures are federally-owned with 130 being actively managed by the park through the various methods as summarized in EIS Section 1.2.4.5. Some structures are not currently used by the NPS and are vacant. Also, the park does not currently manage 50 structures as they are under retention or life estate agreements. However, these structures will eventually be turned over to the park and therefore may be considered for future uses.

Management Goal for Structures

Some NPS structures that contribute to the rural landscape have an existing use and management method that park managers view as long-term and unchanging while others are clearly available for modified and new uses (Appendix A). A total of 58 properties consisting of 175 structures are considered to be available for management under the proposed action using the various methods described in the alternatives, with the other 71 NPS structures having no change in use planned. Specifically for Alternative 2, properties were characterized as having high, low, or no potential for becoming part of an active farmstead. Twenty-three properties were identified as having high farmstead potential while the 32 are considered low farmstead potential, and three as no potential. This assessment was largely qualitative based upon location in respect to available open space, number of outbuildings, historical significance, and proximity to other potential farmsteads. The overall management goal for structures is to protect all structural components of the rural landscape.

APPENDIX E - PRODUCTION PRACTICES FOR SUSTAINABLE AGRICULTURE

A. History of Sustainability

Sustainable agriculture is a generic term used to identify a diverse set of farming practices. Included under this conceptual umbrella are several discrete schools of thought and practice bearing names like organic, biointensive, biodynamic, permaculture, holistic, civic, integrated, and low-input. The term sustainable came into wide use following the 1988 establishment of a small program within the United States Department of Agriculture, named Low Input Sustainable Agriculture. After several years, that program was renamed the Sustainable Agriculture Research and Education Program as it became more apparent that sustainability was far more complex than limiting expensive production inputs and avoiding ecologically harmful practices.

Even in its early years, sustainable agriculture explicitly rejected most of the assumptions and practices of industrial agriculture. It advocates more and smaller farms; limited capitalization and limited use of credit; selective appropriate mechanization; replacement of most agricultural chemicals with biological, cultural, and mechanical alternatives; and grass-based, free-range livestock systems. Equally importantly, sustainable agriculture rejects the assumption that maximizing short-term economic profit is an overriding end that constrains all decision-making.

In recent years, as sustainable farming has begun to emerge as a viable alternative in certain contexts to industrialized food production methods, a broad consensus is forming regarding its fundamental nature. To be truly sustainable, practitioners now argue, agriculture must be economically profitable, socially responsible, and ecologically healthy. Agriculture that lacks any of these three characteristics is not sustainable over time.

B. Sustainable Practices

Sustainable farmers will be expected to possess and use substantial knowledge of sustainable production practices. There are a wide range of practices which are acceptable for most enterprise types, and farmers are free to choose whichever practices they prefer, provided they do not violate general principles of sustainability. The charts shown here suggest a spectrum of practices from less sustainable to more sustainable. Farming in the real world is not abstract; it involves specific conflicting circumstances and pressures that are not easy to balance. In general, however, sustainable farms must strike a balance that puts them clearly within the more sustainable parts of the spectrum.

*Production Practices for Sustainable Crops***Production Practices for Sustainable Vegetable/Crop Enterprises***

	Less Sustainable Thinking		More Sustainable Thinking	
Crop Rotation	Monoculture (same crop in the same field each year)	Two years between the same crop planted in the same field	Three years between the same crop planted in the same field	Four years between the same crop planted in the same field
Organic Matter Maintenance	Add crop residues only	Add animal manures & crop residues	Add cover crops, animal manures, & crop residues	Add compost, cover crops, & crop residues to soil
Nitrogen Fertilization	Broadcast bagged fertilizer in fall	Broadcast bagged fertilizer in spring	Band and sidedress fertilizer to match timing of crop uptake	Rely on N from organic residues in addition to timely fertilization
Insect Management	Calendar spray of insecticides (on predetermined schedule)	Scout for insect pests, then spray non-selective insecticide	Scout for insect pests, then spray selective, least-toxic pesticide	Use cultural practices and beneficial insects to control pests
Weed Management	Apply herbicides as primary weed control tool	Apply reduced rates of herbicide and cultivate	Cultivate to remove weeds	Use allelopathy, smother crops, and mulches to suppress weeds
Disease Management	Apply fungicide on a predetermined schedule (e.g. weekly)	Use disease modeling to time fungicide applications as needed	Employ cultural practices that prevent disease	Plant disease-resistant cultivars

* Adapted from Grubinger 1999.

Production Practices for Sustainable Livestock Operations

Like sustainable crop production, sustainable livestock production involves a wide range of production practices that are acceptable. Farmers are free to choose among literally hundreds of specific management options related to livestock species, breeds, genetics, facilities, feeds and feeding, grazing systems, health care, butchering and processing, marketing, and so forth; provided those choices result in humane care of all farm animals during the course of their lives, and provided that the environmental consequences of the livestock enterprise are positive.

C. Animal Welfare

Sustainable livestock operations must use what are generally referred to as loose confinement systems. That is, poultry are not caged, swine are not tightly crated, beef cattle are not packed into feedlots, and dairy cattle are not confined to small exercise areas. All livestock must have regular access to open air and pasture. All livestock facilities must be properly ventilated and provide animals with clean, dry rest areas (sheltered from wind during cold weather). Each farmer is responsible for recommending specific livestock management practices for CVNP review and approval.

D. Grass-Based Livestock Production

In simplest terms, sustainable livestock enterprises are expected to be grass-based. Plant scientist and grazing researcher E. Ann Clark, University of Guelph (Ontario, Canada), describes certain recent concepts of grass-based farming as attempts to mimic or mirror natural processes (Clark et. al. 2002). In nature, there is no waste, because the output of every process constitutes the inputs for other processes. In contrast, conventional livestock production systems (which depend on specialized crop production to support livestock fed in confinement) break many of the natural cycles that protect ecological systems.

Clark notes that properly managed grass-based livestock production will mimic nature in at least five key ways, which are described here in very simplified form. More technical discussions by Clark and others will be available in a forthcoming volume on sustainable livestock production being published by Natural Resource, Agriculture, and Engineering Services (NRAES) (Rayburn et al. 2002), a consortium of the Cooperative Extension Services of 13 eastern land grant universities and the United States Department of Agriculture.

Ground Cover. Perennial pasture provides year-round ground cover protecting bare soil from crusting, pore clogging, and the erosive effects of rainfall. Ground cover acts as a mulch, reducing moisture loss, stabilizing daily soil temperatures, and inhibiting weeds and insects associated with annual plowing (which are conventionally treated with biocides). Note: The sustainable crop production practices described in this appendix also ameliorate many of the problems related to conventional annual plowing.

Soil Conservation. Perennial pastures grow and contribute to soil organic matter from early spring to late fall. Moreover, uncultivated land promotes the accumulation of organic matter and nutrients frequently lost during conventional cultivation. This enhances a vigorous soil biotic community and strong plant growth. In turn, that enhances water infiltration and reduces runoff, thereby reducing soil erosion and off-site contamination.

Nutrient Cycling. Perennial sods reduce the risk of off-site pollution through efficient nutrient cycling. They provide active nutrient uptake during high precipitation in early

spring and late fall (in marked contrast to annual crops). Grassland impedes overland movement of water and deep-rooted pasture plants (like alfalfa) intercept and take up beneficial nutrients (which could become pollutants if they were to percolate past the plant root zone).

Manure. Livestock produce manure, a valued source of nutrients (in limited quantities) on a well-integrated farm. But manure is a huge waste/contamination problem for confinement feeding operations. In most large-scale livestock enterprises, where most of the livestock feed comes from off-site, there is little possibility that the site can absorb the manure generated. Sustainable livestock enterprises will be expected to match livestock numbers to both the grazing capacity and the manure utilization capacity of a particular farm site. **Note:** *It is also assumed that properly managed grass-based farms do not allow livestock direct access to streams or ponds, thereby avoiding water pollution and bank collapse/erosion.*

Biocide Independence. Well-managed perennial pastures do not require any type of pesticide or herbicide. In short, properly managed grass-based livestock production removes several serious environmental harms that frequently result from conventional, grain-based, close-confinement systems. Grass-based systems are well-suited to the type of small scale, diversified farming preferred. Two specific management practices commonly used in grass-based farming are appropriate and preferred: management intensive grazing and multi-species grazing.

Management Intensive Grazing. One of the key tools of grass-based livestock production is commonly termed management intensive grazing (MIG). MIG is knowledge and labor intensive, not capital, chemical, or technology intensive. Indeed, some of today's finest graziers describe the management of soil, plants, livestock, weather, market demand, and other factors, as an art. That is an apt term for the depth of understanding, and creative adjustments, required to balance and guide so many subtle factors toward desirable ends. Traditional/conventional pasture management in America has been anything but management intensive or an art form. Traditional/conventional pasture management is often termed continuous grazing. The basic strategy here is to do nothing: Turn livestock into a pasture for the entire season, letting them pick and choose to eat whatever, and wherever they like. This results in many economic and ecological drawbacks.

MIG systems operate at the opposite end of the sustainable grazing spectrum, using what is usually called rotational grazing or strip grazing. Here livestock are moved from one grazing paddock or area to another ever day or so (every few hours in some systems), depending on how a grazer chooses to balance the many factors involved. It is important to note that rotational grazing actually allows animal stocking rates from two to ten times as high per acre as continuous grazing, while avoiding the overgrazing problems commonly associated with continuous grazing.

Multi-species Grazing. CVNP will encourage multi-species grazing in its various forms (grazing sheep, goats, cattle, and poultry sequentially or together). Multi-

species grazing pushes pasture ecosystems toward diversity, complexity, and stability while simultaneously reducing herd/flock disease and parasite pressure, and market cycle risks associated with single species production.

APPENDIX F - NEW LEASING REGULATIONS - LEASE OFFERINGS AND REQUIREMENTS

A. Legislative Authorization

Long-term leasing of federally-owned or administered property, for purposes such as the Countryside Initiative, is authorized by 16 U.S.C. 1a-2(k) and 16 U.S.C. 470 h-3, as implemented by National Park Service Regulations 36 CFR part 18 (including rule amendments issued December 27, 2001 in 66 FR 66755). Referenced regulations allow leases of up to 60 years, at fair market value rent. Prior to these current authorizations, use of NPS lands for specifically agricultural purposes has been limited to (SUPs) covering periods of one to five years. Although short-term SUPs are intended to prevent or limit serious damage to park lands, ironically, they act as a negative incentive to basic land stewardship. It is economically irrational for farmers to undertake costly long-term land care programs, which can take years or decades to implement, since they have little assurance of a reasonable return on their investment. The leasing authority now available resolves this inherent dilemma.

B. Cooperative Efforts

In 1999, a new nonprofit organization, the CVCC, was established to help develop and manage the Countryside Initiative. Under the terms of a Cooperative Agreement with the NPS, the CVCC provides technical information and guidance on sustainable agriculture, helps prioritize rehabilitation of farm properties, recruits and evaluates prospective farm lessees, and will evaluate and monitor each farm's annual operating plan. CVCC will work closely with each farm lessee to align their private goals and annual operating plans (see section F) with the public objectives of the rural landscape management program in CVNP.

C. Competitive Proposal Process

A Request for Proposals, open to all interested parties on a competitive basis, will be made periodically as farms in CVNP become available for leasing. Proposals will be carefully reviewed and those judged most likely to achieve a particular farm's best use (including demonstration of the proposers' capacity to successfully implement the proposal) will be awarded the right to negotiate a lease.

D. Duration & Transferability of Leases

The maximum term or duration of any lease will be 60 years, at which point a new open competitive proposal process is once again required by law. Some lessees may prefer a shorter-term lease. However, a competitively earned leasehold interest is transferable (by gift, sale, or other device) during the lease term, to the lessees' children, or to other persons, subject to approval by CVNP. Any transfer of the right to occupy and operate a farm is contingent upon the lessee and transferee satisfactorily demonstrating that such a change will result in equal or superior management of the farm.

E. Responsibility for Continuous Active Farming

Achieving the purpose and objectives of rural landscape management in CVNP depends upon all leased farms being actively and continuously operated as described in selected lessees' proposals, in their subsequently negotiated leases, and in annually approved operating plans. If a lessee fails to fulfill the obligations of his or her lease, for whatever reason, CVNP will issue a notice of default. Monetary defaults must be cured within 30 days. Non-monetary defaults must be cured in 60 days, or a plan to cure that is satisfactory to CVNP must be supplied within 60 days. CVNP will accept or reject a plan to cure within 30 days of its receipt. At its sole discretion, CVNP may grant the lessee the right to attempt a transfer of lessee's remaining leasehold interest. Such transfer must be affected within twelve months of CVNP's original notice of default, and the lessee must maintain his or her obligations under the lease while efforts to affect the transfer are in process. Failure to cure a default within the period allowed, or failure to provide CVNP an acceptable plan to cure, or failure of CVNP to grant the lessee the right to attempt a transfer, will result in CVNP exercising its retained right to immediately reenter and repossess the farm property.

F. Annual Farm Operating Plans

Annual operating plans will include the following elements. These plans must be reviewed and accepted by the NPS before implementation.

- **Narrative Description** – A detailed description of the lessee's desired operating program for the upcoming year, giving particular attention to production and marketing practices. This narrative should clearly explain the lessee's intent. The verbal text should be accompanied by maps (whole farm, field/plot plans, etc.) which clearly locate any proposed production activity (such as plowing, planting, chemical application, soil amendments, poultry skids, dead livestock composting site, etc.). Description of the lessee's marketing plans/activities should cover all of the lessee's sales outlets: Wholesale (stores, restaurants), farmer's market, farm stand, etc. A timeline should also be prepared covering all proposed activities.
- **Enterprise Budget** – A detailed description of the lessee's expected gross farm revenues and expenses.
- **Physical and Capital Improvements** – A detailed description of all proposed physical changes, repairs, or improvements which the lessee hopes to make to the premises. Verbal narrative, maps, charts, budgets, construction details, etc. will be required to make clear the lessee's intent. The CVCC will assist the lessee in developing satisfactorily detailed and clear proposals.

G. Dual Components of Fair Market Value Rent

All CVNP farms must be leased at fair market value rent. In the marketplace, farm leases are commonly based on two distinct financial factors: the rental value of a residence, and the rental value of agricultural buildings and land (or the productive income from utilizing the buildings and land). This practice is followed in establishing fair market value rent for CVNP farms.

Residential Component

The residential component of fair market value rent is determined by first obtaining an appraisal, prepared by a certified appraiser, which compares farm residences with similar properties in surrounding communities. This raw number is then adjusted to reflect several limitations, restrictions, and requirements. First, only persons with the knowledge, resources, and willingness to affirmatively farm according to CVNP guidelines are eligible to lease and live in these residences. Lessees must affirmatively comply with all applicable federal regulations and NPS requirements, including those related to archaeological, historical, and natural resources (e.g., National Environmental Policy Act, National Historic Preservation Act, Endangered Species Act). Moreover, lessees will experience a significant loss of privacy due to the residence's location on a park farm where limited but regular public access is encouraged. For these and other reasons, the raw appraisal will be reduced 50 percent for all residences, and an additional 10 percent for all residences listed in, or eligible for listing in, the National Register of Historic Places.

Productive Component

The productive component of fair market value rent will be computed as a percentage of gross farm revenue derived from farming and all other sources related to the use of the Initiative property. Other sources of lessee revenue, unrelated to use of the farm site, shall have no bearing on this rental component. This method of determining farm rent is one of several methods commonly referred to in the market place as a *flexible cash rent*. This particular form of flexible cash rent allows lessors and lessees to share in both the risks of production and in opportunities for profit.

The precise percentage paid by Midwestern farmers for rental of land varies widely by agricultural enterprise: 30 percent to 40 percent of gross revenue in conventional corn and soybean operations and 10 percent to 20 percent of gross revenue in chemically intensive fruit/vegetable enterprises. While CVNP farm enterprises will more closely resemble the latter, they carry an additional affirmative responsibility to use only approved sustainable production practices. Hence, the productive component of farm rent will be benchmarked at 10 percent of gross farm income. That benchmark will be reduced by 1 percent of gross income for certified organic producers since verification of sustainable production practices will be largely assumed by the certifying agency.

Sustainable farmers are also expected to be active land stewards, enhancing soil health and productivity through ecologically natural and beneficial practices which are relatively slow. Such practices often require five to ten years to reach (and stabilize at) optimum levels of production. Similarly, sustainable farmers are expected to create new retail markets where none currently exist - a process that also typically follows a slow growth curve, requiring five to ten years to achieve a high optimum level. Hence, a lessee's productive component of rent for sustainable farms will be discounted during the first ten years of operation: beginning at 5 percent of gross farm income in year one (4 percent for certified organic enterprises), and increasing thereafter .5 percent annually until reaching 10 percent in year ten (9 percent for certified organic).

APPENDIX G - FARM FENCING IN CUYAHOGA VALLEY NATIONAL PARK

A. Introduction

Fences are among the most common, character-defining elements of agricultural landscapes. It is impossible to imagine traditional diversified farming in North America without a web of fencing to organize and regulate the landscape. Wherever small-scale, diversified farming is pursued - as it was in the Cuyahoga Valley during the 19th and early 20th centuries - fences lace the landscape together and let working landscapes work. Fences define property boundaries and field boundaries as well as organize farmsteads by functional needs.

This appendix summarizes the history and functions of farm fencing in Cuyahoga Valley National Park. Fencing types are discussed in a historical context from their early uses and functions to the new functions required under the preferred alternative. The guidance provided here will help direct the preservation, rehabilitation, and construction of fencing under the alternatives.

The historical context of farm fencing is examined in Section B to illustrate how different farming contexts and needs have resulted in different types of fencing evolving over the years. A description of the specific types of historical fences once found in the Cuyahoga Valley is presented in Section C.

The need for a new management perspective on fencing is discussed in Section D. The required functions and significance of fencing under the preferred alternative is described in Section E. Preferred modern types of fencing that serve to facilitate the establishment of small sustainable farming operations in a national park context is then described in Section F.

B. Traditional Functions of Farm Fencing in the Cuyahoga Valley

Historical accounts of Anglo-American settlement of the Western Reserve, including the Cuyahoga Valley, portray an evolving pattern of farming – and fencing – repeated over and over from New England and Virginia to the Pacific (Cherry, 1921; Jones, 1983). Here, as elsewhere, pioneers had limited acreages of cultivated crops. For a time it was easier, even necessary, to fence in crops and allow livestock to forage at large. For a time, severe wildlife predation risks (e.g., bears, wolves, foxes) often required even livestock and poultry to be closely penned near the farm cabin, at least at night. Eventually though, Western Reserve bear and wolf populations were reduced making it easier to allow pigs and sheep to run at large, along with cattle, without undue loss of life.

For a few decades following early settlement in the Cuyahoga Valley (as in most of North America), farmers simply assumed that they must fence their own and their neighbors' livestock out of their crops. Wildlife damaging the crops were driven off or killed. As settlement density increased, there inevitably came a time in nearly every

community, when popular opinion shifted against the right of farmers to allow livestock to run at large. Whenever it did, one of the purposes of fences shifted from keeping livestock out, to keeping them in.

By the second half of the 19th century, as the Cuyahoga Valley continued evolving from early settlement conditions to a landscape extensively improved for diversified farming, the web of fencing on the land grew dramatically. Fences often marked property boundaries, and kept livestock in, most of the time. If they did not, a farmer was liable for the damage caused by his wandering animals.

As for wildlife predation, fences available through the late 19th century offered minimal protection. Hence, farmers expended great effort to control wildlife populations through hunting and trapping. Bears and wolves were largely eliminated, and with them most of the predation threat to pigs and sheep. Deer numbers were greatly reduced and with them a major threat to corn and vegetable crops. Foxes, raccoons, rabbits, woodchucks, and birds continuously threatened farmers' poultry, field crops, and garden vegetables. In general, eliminating predators or severely limiting their numbers was the farmer's only practical option well into the 20th century. Determined predators could almost always breach fence types commonly available and affordable.

C. Historical Fence Types in the Cuyahoga Valley

Fence types in the Cuyahoga Valley have evolved over time (NPS 2000b). The most common fence type in early settlements (apart from piled brush and stumps) was comprised of saplings or split rails placed one upon the other in a zigzag fashion. Northeasterners knew this practical fence, which was relatively cheap for materials and labor, as a *snake* fence, and southerners knew it as a *Virginia* fence. Eventually *post-and-rail* fences began to displace snake fences because they required less timber and wasted less land; however, they were far more labor intensive to build. Next, as sawn lumber became relatively abundant and affordable, so-called *board* fences began displacing split rail, at least near farm buildings and along highway frontages, for aesthetic if not functional reasons.

Barbed-wire became available and affordable by the 1870s and 80s. It became the fence of choice on many farms in the Valley, and across America. *Woven-wire* fences also became available in the 1880s. While more expensive in both material and labor than barbed-wire, woven-wire fences were decidedly superior at keeping sheep, goats, and swine in while keeping canines out. Although examples of all of the fence types described above continued to be built in the Valley well into the 20th century, barbed- and woven-wire fences eventually replaced most all-wood farm fences, except where the aesthetic appeal or physical strength of the older fence types seemed desirable.

It is also important to note that not all boundary delineations were necessarily fences that were structural in nature. Rather, some farmers in the Cuyahoga Valley utilized vegetation to delineate and organize the landscape. This is evidenced in historic photos

and several lithographs from the 1874 *Combination Atlas of Summit County, Ohio* where hedge rows and tree rows, and to a lesser extent shrubs, demarcate crop plots, meadows, and pastures. Although most of the visual documentation is concentrated around farmsteads, it is logical to conclude that this treatment extended to fields. In addition, several early 20th century landscape photographs indicate that vegetation was part of the “patterned” landscape. There is little evidence, however, to suggest that brush or stump fences or stone walls were used in the valley’s historic agriculture landscape. Due to cultural migration patterns and the settlement period, neither of these fencing traditions developed to any extent in the Cuyahoga Valley.

This evolving, inherently imprecise pattern of fence types that are correlated to settlement age and stages offers an important insight: a recognition that farm fences are *always* conceived and built in a *context* – including availability of natural resources, cultural knowledge and preferences, historical antecedents, available technologies, economic pressures, and so on. The contexts that existed in the past no longer exist. Neither the Valley’s early settlement context, nor its later industrial-urban context is the modern national park context.

D. Need for a New Fencing Paradigm in CVNP

The preferred alternative (Alternative 2 - Countryside Initiative) in this EIS requires a fundamental rethinking of CVNP’s management of farm fencing. Previously, many old farm fences were removed over the years under the perception that they were intrusions on the natural landscape or adversely affected wildlife. Adaptive reuse of historic and non-historic buildings usually disassociated structures from their surroundings. Only fences near such structures were normally regarded as significant. When nearby old farm fields are mowed to maintain the open vistas of a “rural landscape”, the extant fences served no functional purpose, and were apt to be removed for ease of mowing.

Little new construction of farm fences has occurred since the park was established. Except for some areas of severe deer pressure on sweet corn and vegetables, or for the pasturing of horses, SUP holders are not inclined to install fencing due to its high cost and the uncertainty of their tenure. Even when SUP holders feel obliged to build fences, their priority is almost exclusively low-cost functionality, not necessarily cultural and aesthetic goals.

The other alternatives in this draft EIS (Alternatives 1, 3, and 4) suggest that little or no new fencing is expected beyond those installed on working farms and those restored to preserve scenic value. Only Alternative 2 anticipates the need for a significant increase in fencing due to its emphasis on profitable agricultural activity. When profitable agricultural activity is absent, however, there is no functional need to install fences. In most of the alternatives, profitable agricultural activity should be minimal. As a result, the need for fencing is expected to be minimal as well. Fencing for these alternatives will likely be for aesthetic reasons rather than functional reasons. Thus, the guidelines and recommendations presented below are less applicable to Alternatives 1, 3, and 4. The

only constants are that aesthetically, the types and styles of fences must be modern but compatible to the historic rural character of the landscape, and that the installation of any fences will require the approval of the NPS including any additional environmental and cultural compliance.

Alternative 2 envisions a rural landscape dotted with small, diversified farms – created through the adaptive reuse of many of the farms which operated in the area from mid 19th to mid 20th centuries. These farms will be similar in scale to their predecessors and will grow and sell products largely similar to those raised in the area in the past. Like their predecessors, most of the new farms will integrate crop and livestock operations. On that basis alone, fences would again become as functionally necessary and visually prominent as they were in the landscapes of earlier decades. Preserving and protecting CVNP's rural landscape, therefore, if understood to mean a landscape of small diversified farms, also then means that fences must once again be viewed as integral elements of the landscape.

E. New Fencing Under the Countryside Initiative (Preferred Alternative)

Fences are always conceived, built, and maintained in a context. Fences built to support small, sustainable farms established under the preferred alternative are conceived as part of a program to preserve and protect for public use and enjoyment the park's historic, scenic, natural, and recreational values. Because these farms will be part of a modern national park context, their fences must take on additional special functions not required of their historical predecessors. Fencing on such farms has at least four major functions: farm organization, cultural landscape preservation, protection from depredation, and managing visitor access.

The first function is the traditional function of organizing farms into areas for crops, and areas for livestock. When crops are growing in a field, it is not productive to have livestock grazing in the same area. Perhaps after harvest, it would be acceptable for livestock to use that area. On some sort of cyclical plan, field crops and pastures may even switch sides of the fences that separate them. The farmer must be able to structure the use of his land in this fashion, and fencing is the appropriate tool for this task.

Preserving and protecting CVNP's rural landscape presents a new opportunity – and creates a new function – for the park's new fences. As noted, the preferred alternative envisions an adaptive reuse of CVNP's old farms which maintains both their general scale, and the general character of what they produce. Wherever practicable, attempts will be made to stabilize and conserve the size and pattern of old farm fields that still survive from earlier times. Where functionally appropriate to the modern needs of individual farms, new fencelines will be reestablished where old ones once ran. Permanent structural fences (built fences, which stay in place for several years,) will be used primarily to help fix in place and protect old field boundaries and perimeters. These fences should be built to meet modern functional needs while being aesthetically compatible to the historic setting. Historic fence types should not be replicated, as a false

representation of historic landscape elements is undesirable. In addition, the use of vegetation to delineate crop plots or fields is not expected to be common as they do not typically meet modern functional needs for profitable farming. Nonetheless, the reestablishment of structural fences and fence lines will be effective in restoring the character, look, and feel of the prior rural landscape.

Farming in the context of a national park presents special challenges related to wildlife predation – challenges that can not be solved as they were historically in the Cuyahoga Valley. CVNP like most national parks is a haven for wildlife. On federal land, traditional routine hunting, trapping, or poisoning to reduce predator populations is not an option. But it is impossible to farm in CVNP or anywhere else without limiting the predation of both crops and livestock to tolerable levels. Protecting farmers and wildlife from each other is a necessity. Most farm fields in CVNP, like various other protected locations in the park, must be conceptually regarded as “exclusion” areas that are off-limits to certain kinds of wildlife. Fences are a partial – but still key – solution to this wildlife challenge. Some modern fences, and fencing techniques, offer significantly more protection against wildlife predation than the fence types available through most of the 19th and early 20th centuries. Such fences are discussed in the following section, along with management practices that must supplement the simple physical barrier presented by a fence alone. Clearly, good fencing offers the most effective and benign way to enable farmers and wildlife to coexist with minimal conflict.

An additional special challenge for farming in a national park involves human visitors. Park visitors’ curiosities will likely lead them to farmers’ fields. While the NPS envisions farms that routinely and regularly welcome public visitors, it is not acceptable for visitors to routinely wander through planted fields, harvest an occasional vegetable, or disturb farmers during their dinners. Farm fences will help identify areas that are occasionally off-limits to park visitors. People will be able to visit farms in the park, but when guided by the intents and schedules of farmers. Among other things, fences become a kind of management tool helping farmers direct park visitation around their farm landscape.

F. Preferred Modern Types of Fencing for CVNP

Alternative 2 assumes that among the great strengths which farmer-lessees bring to CVNP’s effort to preserve and protect its rural landscape are creativity, ingenuity, technical knowledge, and practical farming experience. They will be expected to focus their talents and skills on numerous issues, including fencing for their own farm enterprises. Farmers are best suited to make most of the detailed decisions about fence types, materials, etc. The guidance that follows is intended to provide a general framework of understandings, assumptions, and expectations which park managers and farmers can work within – together, effectively, and efficiently.

It is not the intent of the NPS to be unnecessarily restrictive or prescriptive relative to farm fencing. CVNP staff will work closely with farm lessees to solve particular fencing

needs on the farmstead and in farm fields. It is a requirement that farm lessees receive NPS approval for fence characteristics (i.e., types, styles, materials, applications, and locations) prior to their installation. Additional compliance work may also need to be completed.

A brief discussion of the factors new farmers will need to consider as they plan new fencing for the adaptive reuse of farmsteads follows. With such factors in mind, the solutions preferred by the NPS for various fencing problems are presented.

Fencing around farmhouses will be treated differently than fencing around barns, outbuildings, and fields. Fencing around farmhouses was historically more decorative than functional in nature and it is expected that this will be the same for rehabilitated farmsteads. As it is more decorative in nature, fencing around farmhouses is not considered to be essential to the profitability or efficiency of rehabilitated farms and it is not expected that a large amount of fencing in these locations will occur. Thus, the following discussions do not apply to farmhouses and the NPS will look at these limited fencing proposals on a case by case basis.

In the field and around barns and outbuildings the situation differs. Fencing in these areas will be critical to the profitability and efficiency of rehabilitated farms. Thus, a large amount of fencing in these locations is expected. However, what is required to keep one animal in or out may not do for another. Fences that will ordinarily stop most dairy cattle, frequently are not equal to the task of stopping beef breeds. Cattle fences often will not contain sheep or goats – although good sheep and goat fences normally will hold cattle. Fences that will keep coyotes and dogs out will usually keep sheep and goats in, but the reverse is often not true. Fences that keep ewes in, will not necessarily keep lambs in. Some breeds of each species are taller, stronger, and flightier than other breeds – and their fencing must respond to their relative strength and agility. Hungry animals put more pressure on a fence than well-fed animals; males more pressure than females. Young livestock and their mothers are always desperate to breach fences at weaning time – fences that normally work, won't work at this time. In short, fences must be conceived and built for their most difficult task. Modern CVNP farm fences will deal with all of these varied issues and factors.

While *livestock* fencing in CVNP will generally be concerned with keeping animals *in*, *predator* fencing will be concerned with keeping wildlife *out* of both a farmers' livestock and crops. Pastures and field crops are exclusion areas for some wildlife, some or most of the time. Fences will need to keep coyotes, foxes, raccoons, and skunks out of farmers' sheep, goats and poultry. Deer, woodchucks, raccoons, rabbits, and birds must be kept out of crops – at least at certain times. In general, physical exclusion with fencing or netting is more effective and less intrusive than any and all kinds of “scare” devices such as air cannons, tape recordings, reflective tape, or balloons. Fencing – supplemented whenever necessary by guardian animals – is the preferred method of managing wildlife predation on sustainable farms.

Table A2 shows in a simple way the most common wildlife species likely to damage CVNP field crops. It identifies the specific crops threatened by each species, and indicates the basic fencing required to significantly reduce their damage (adapted from Grubinger 1999).

Without getting mired in the myriad details encountered in a modern catalog of fencing materials, preferred general fence types can be described. First, the desire to preserve and protect the general character, scale, and look of the Valley's prior farm landscapes means that, where practical, *permanent fences* should be established around the boundaries of most major fields. These new permanent fences should be functional and modern in type, yet historically compatible to the setting. It is suggested that the fences be built with wooden posts and woven or smooth-wire or a combination thereof with the intention of looking *much* like traditional wire fences built in the Cuyahoga Valley area for well over a century. While barbed-wire was one of the two most commonly built wire fences prior to World War II, its use will be restricted to near-ground-level installations intended to deter digging predators. Smooth, high-tensile, electrified wire is today generally regarded as superior to barbed-wire for controlling livestock without injury and is far superior for discouraging most wildlife predators.

Modern, small-scale farms, which follow sustainable agriculture practices, commonly resort to very intensive management of small areas for both livestock and crops. Hence, they require frequent (often daily) movement of grazing animals, or they need to protect vegetable or flower plots against predators for just a few days or weeks at a time. This is typically achieved with moveable *temporary fencing* made of (relatively) lightweight materials such as plastic or steel. The types and styles of such fencing commercially available are extremely numerous and diverse, and many are acceptable for managing temporary interior subdivisions of farm fields.

Table A2. Controlling Wildlife Crop Damage with Exclusion Fencing

<u>Wildlife</u>	<u>Crops Typically Damaged</u>	<u>Basic Exclusion Fencing</u>
Deer	Lettuce and other greens, crucifers, legumes, squash, pumpkins, sweet corn, sunflowers, fruit trees	High tensile electric fencing 4' – 6'; slanted high tensile fence is an effective alternative
Woodchuck	Seedlings, lettuce and other greens, crucifers, legumes, squash and pumpkins, fruits	3' hardware-cloth fence (plus 1' buried); hot wire supplements
Raccoons	Mature sweet corn and melons	At least 2 hot wires at 6" and 12"
Rabbits	Seedlings, lettuce and other greens, carrots, parsnips, beets	2' woven-wire, or chicken wire is effective
Birds	Corn seedlings and mature corn, tomatoes, melons, and fruits	While netting is relatively expensive, it is far more effective than any form of scare device

APPENDIX H - SUMMARY OF WETLAND AND RIPARIAN BUFFER ZONES

A. Introduction

Buffers protect aquatic systems by moderating the effects of storm water runoff by stabilizing soils, filtering harmful substances, reducing sedimentation and nutrient input, and moderating water level fluctuations and flooding. Wetland buffers also provide essential wildlife habitat for feeding, roosting, and breeding. Forested buffers shade waters thereby moderating temperatures and oxygen levels for aquatic wildlife. Buffer zones afford wildlife cover for safety and thermal protection. Riparian buffers can also act as effective corridors for wildlife movement. Additionally, buffer zones increase the aesthetics and recreational opportunities of water resources.

A brief overview of how the NPS assigns buffer zones for wetlands and riparian areas that are associated with agricultural uses in Cuyahoga Valley National Park follows. The protocols for establishing buffer zones for wetlands and riparian zones differ slightly because the value and required functions of buffers for these areas differ. For example, wetlands are more prone to sedimentation and deposition of nutrients due to low water velocities. Riparian areas are more susceptible to erosion effects. Wildlife habitat values of wetlands and riparian corridors differ as well.

B. Wetland Buffers

The *Wetland Protection Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent direct and indirect wetland impacts from NPS activities on agricultural lands through wetland identification, delineation, quality assessment, buffer zone establishment, and monitoring (NPS 2002b).

Wetland buffers are vegetated areas that reduce the adverse impacts on wetland values and functions from adjacent land use. An excellent overview and literature review of the roles of wetland buffers and effective buffer sizes is available (Castelle et al. 1992).

Wetland buffer recommendations are prescribed based on wetland quality assessments using an adaptation of the Ohio Rapid Assessment Method (ORAM) (Mack 2001) and the associated scoring methodology (Mack 2000). Generally, sensitive or unique wetland areas would be assigned larger buffers and low quality areas would require smaller buffers. Wetland buffers in CVNP will be established from a minimum of 25 feet to 200 feet or more. The following initial buffer categories based on wetland quality are:

Wetland Category	Buffer Size
1 - Very Low Quality*	25' – 50'
2a - Moderate Quality	50' – 125'
2b - Moderate Quality	125' – 200'
3 - Very High Quality	200'+

*Only tiny tire-rut and roadside ditch wetlands would receive buffers less than 50 feet. Buffers of 50 feet are recommended for all other low quality wetlands.

Buffer zone adjustments are then prescribed based on site-specific resource issues, restoration potential, and the type of proposed agricultural land use. Areas with significant natural resources or high restoration potential will be assigned larger buffers.

C. Riparian Buffers

The *Riparian Buffer Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent direct and indirect impacts on the Cuyahoga River and its tributaries from NPS activities on agricultural lands through buffer zone establishment and monitoring (NPS 2002a).

Riparian buffers are vegetated areas beside rivers and streams that help reduce the adverse impacts that adjacent land use may have on water resources. Excellent reviews of the roles of riparian buffers and recommended buffer sizes are available (Desbonnet et al. 1994; Wenger 1999).

Buffer zones will be applied to both sides of all watercourses including intermittent, perennial, and ephemeral streams. The base width of buffers will be assigned as follows based on drainage area:

Drainage Area (sq. mi.)	Base Width (ft.) (each side)	Examples (sq. mi. drainage)
0.5	50	Small intermittent streams, unnamed upper tributaries
0.5 - 20	75	Haskell Run (1.3), Langes Run (3.9), Columbia Run (5.4)
20+	120	Yellow Creek (30+), Tinkers Creek (50+), Furnace Run (50+), Cuyahoga River (800+)

An additional 2 feet will be added to the base width for each 1 percent of slope. Buffers will be extended by the width of impervious surfaces and areas with slopes greater than 25 percent as these do not provide effective buffer function. Adjacent wetlands will be

included within riparian buffers but are also not counted as part of the base riparian buffer width. Wetlands will be assigned buffers as described earlier, extending riparian buffers if necessary.

D. Agricultural Uses in Buffers - Managed Zones

Some sustainable agricultural uses do not significantly impact buffer zone function and may actually improve buffer function (e.g., management intensive grazing). Buffer zones may therefore be managed as a two-zone system, a Protection Zone and Managed Zone. Some sustainable agricultural use of the Managed Zones may be permitted provided that no fertilizer or pesticide use occurs, only no-till seeding occurs, and rotational grazing practices are maintained. Other uses that will not impact the protective function of this portion of the buffer zone (e.g., planting of shrub crops such as berries) may also be considered. All such uses will be reviewed on a case by case basis.

For wetlands, Managed Zones are defined as the buffer area that extends beyond 150 feet. Wetlands with buffers of 150 feet or less will have no Managed Zone. Riparian buffer zones may be managed as a two-zone system when at least 50 feet of forest extends from the edge of a watercourse, and the outer 25 feet of the buffer has not already progressed into a shrub or forest stage (i.e., it is currently cultivated or mowed or is characterized as largely herbaceous). In these situations, the outer 25 feet of the established buffer area may be established as a Managed Zone.

E. Monitoring Buffers

Monitoring efforts will be established to assess buffer effectiveness and recommend additional buffer zone adjustments should original buffers prove less than adequate. A comprehensive monitoring program including research on wetland ecological indicators are currently in development. Some ongoing basic monitoring efforts (e.g., water quality) already overlap with established park monitoring. Other more robust and sensitive wetland monitoring tools are being investigated for use in the park (e.g. Danielson 1998, Rader et al. 2001). Baseline monitoring data will be collected before farming activity begins whenever possible and will then be reassessed periodically to assess changes and trends. Additionally, annual reviews of lessees' compliance with land use restrictions including protection of buffer areas will be performed as conditions of leases.

